(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
29 March 2001 (29.03.2001)

PCT

(10) International Publication Number
WO 01/22325 A1

(51) International Patent Classification[7]: G06F 17/60

(21) International Application Number: PCT/US00/25986

(22) International Filing Date:
20 September 2000 (20.09.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/154,900 20 September 1999 (20.09.1999) US

(71) Applicant and
(72) Inventor: HWANG, Ivan, Chung-Shung [US/US]; 13072 Stanton, Santa Ana, CA 92075 (US).

(74) Agent: TACHNER, Leonard; 17961 Sky Park Circle, Suite 38-E, Irvine, CA 92614 (US).

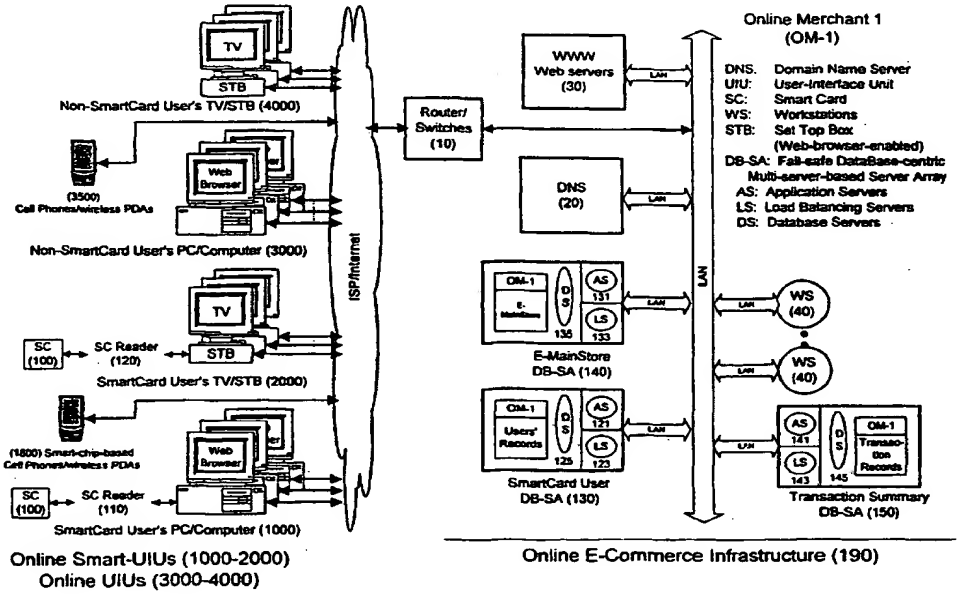
(81) Designated States *(national)*: AL, AM, AU, BA, BG, BR, CA, CN, CZ, EE, GE, HR, HU, ID, IL, IS, JP, KE, KP, KR, KZ, LK, LR, LT, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, RO, RU, SD, SG, SI, SK, TJ, TR, UA, UZ, VN, YU, ZW.

(84) Designated States *(regional)*: European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published:
— *With international search report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SYSTEM AND METHODS FOR IMPLEMENTING E-COMMERCE SERVICES



(57) Abstract: An interactive advertising-based transaction-enabling network system and methods for implementing user-authenticated E-Commerce services. The network system comprises a plurality of "online" web servers (30) that are accessible via public "online" user-interface units, such as PC's (1000, 3000), TV's (2000), PDA's, and cell phones (1800, 3500), and "onsite" servers that are accessible via private "onsite" links using "onsite" user-interface units at commercials sites. The system further comprises a number of server-based apparatuses, all of which construct an "online" data center that communicates with a plurality of online and onsite servers.

WO 01/22325 A1

BNSDOCID: <WO__0122325A1_I_>

SYSTEM AND METHODS FOR IMPLEMENTING E-COMMERCE SERVICES

FIELD OF THE INVENTION

The present invention generally relates to a multiple-computer-based system, and more particularly, to an interactive advertising-based transaction enabling system and methods for implementing smart card-based commingled online and onsite E-Commerce services. The inventive system comprises a plurality of online and onsite servers that are accessible online via PCs and TVs from homes and offices, and onsite via user-interface units in commercial sites. The inventive system further comprises apparatuses to incorporate a plurality of online and onsite server functions into a combined online and onsite infrastructure. Moreover, the present invention is implemented with a unique method of creating smart card-based E-Commerce boxes for converting the aforementioned combined infrastructure into a commingled online and onsite infrastructure, where cross-vendor E-Commerce services can be generated either online or onsite and subsequently transacted both online and onsite. Additional E-Lead-based interactive advertising apparatuses are also employed to enhance the commingled online and onsite infrastructure, thus constituting a preferred embodiment of the present invention, which creates an interactive advertising-capable smart card-based commingled online and onsite E-Commerce service platform for hosting multiple vendors and users concurrently. In addition, the present invention is implemented with platform-service-oriented methods for creating platform's basic E-Commerce services

BNSDOCID: <WO___0122325A1_I_>

applicable to platform participants, and platform-link-oriented apparatuses for extending the E-Commerce box-based services to foreign online and onsite servers via platform-service-enabled online and onsite user-interface units.

BNSDOCID: <WO___0122325A1_I_>

BACKGROUND ART

CROSS-REFERENCE TO RELATED APPLICATIONS

This application takes priority from Provisional Patent Application Serial No. 60/154,900 filed September 20, 1999. The present application discloses subject matter related to the following U.S. Patent Nos. 5,530,892; 5,802,391; 5,577,205; and Patent Applications 08/742741, filed November 1, 1996 and PCT/US00/13595 filed May 17, 2000 (originally filed as Provisional Application Serial No. 60/135,318 filed May 20, 1999), all of which provide the preferred building block to configure a preferred embodiment of the present invention.

DESCRIPTION OF RELATED ART

The merging of computer technology and inter-computer networks creates online and onsite digital transaction environment, in which electronic commerce-based services can be implemented. Even though, the term electronic commerce is commonly linked to the Internet, particularly Web commerce, it is, in a broader definition, used to describe a wide variety of electronically facilitated transactions that are both consumer-to-business and business-to-business oriented. Electronic commerce established in the online virtual world allows buyers and sellers to link up via Intranet, Extranet and Internet without the requirement of a physical meeting, removing the time and place urgency characteristic of traditional transactions. In addition, electronic commerce can be established in the onsite physical world, where it

3NSDOCID: <WO___0122325A1_I_>

facilitates the quick, efficient execution of a wide range of digital transactions at a lower cost.

The two major driving forces that can lead to ubiquitous electronic commerce are digital transaction and electronic money capabilities, which can be functionally fulfilled by using smart cards, defined and implemented as ISO7816-2. Smart cards technology offers a potential solution to launch consumers into digital transactions and electronic money both in the virtual and the physical world. It is believed that if smart cards can achieve acceptance and develop a network of faithful users, this technology will be key to the future of digital transactions.

However, the realization of this goal requires sufficiently developed technology in smart card-based infrastructure to facilitate smart card operations. Moreover, if smart cards are to play a part in realizing digital transaction in the electronic commerce environment, they must offer more than just a substitute for bills and coins. At present, smart cards are mainly used for online or onsite electronic payment.

It is imperative that smart cards provide users with a fuller range of online and onsite E-Commerce services, such as online electronic purchasing, onsite electronic purchasing and most importantly, the commingled online and onsite electronic purchasing-based E-Commerce services. Commingled services are E-Commerce services that can be generated either online or onsite and subsequently transacted both online and onsite. These commingled electronic purchasing services are the backbone services for E-Commerce. Additional E-Commerce

BNSDOCID: <WO__0122325A1_I_>

services can be easily incorporated due to the fact that basic E-Commerce services, which are applicable to all users, are based on procure-to-pay services.

Before defining commingled online and onsite electronic purchasing-based E-Commerce services, there are some terminology-related definitions that need to be clarified in advance.

1. Pertaining to smart cards:

a) A smart card user hereinafter referred to as a "user", who purchases products and services using smart card. A smart card user has obtained a smart card with a unique smart card number, no matter whether the number has been registered or not. If not, the user is going to use it for the first time.

b) A smart card vendor, hereinafter referred as a "vendor" or "merchant", who sells products or offers services using smart cards. Vendors can be either online merchants that sell online, site merchants that sell onsite, or service providers that offer services online as well as onsite. Vendors can also be smart card users, who will use smart cards to set up E-Commerce services or transact with other vendors.

c) The service aggregator, hereinafter referred as the "aggregator", who establishes the E-Commerce service infrastructure, maintains and operates the service infrastructure, provides services for vendors to install their services onto the infrastructure using smart cards and provides certified vendor-based E-Commerce services for smart card users to choose from.

2. Pertaining to electronic stores:

a) E-RealStore: which is an onsite E-Store, run by a site

BNSDOCID: <WO___0122325A1_I_>

merchant, providing the brick-and-mortar storefront E-Commerce-based services. Its services can be accessed via onsite user-interface units by smart card users. A vendor may have many E-RealStores, located in different communities or strategic areas.

b) E-MainStore, which is the online E-Store, run by an online vendor or a service provider, providing virtual cyber-front E-Commerce-based services. Its services can be accessed by users in the homes and offices via online user-interface units. Generally, a vendor will have only one E-MainStore, located in the central office.

c) E-BranchStore, which is an online web-based proxy E-Store, run by the aggregator, providing online traffic-control services and E-Commerce services for the E-MainsStore. Its services can be accessed by users and vendors in homes and offices via online user-interface units. E-MainStore vendors may set up many E-BranchStores, located in different communities or strategic areas.

3. Pertaining to user-interface units:

a) Online user-interface units, which are smart card users' PCs, TVs with digital two-way set-top-boxes, accessing vendors' online E-MainStore, E-BranchStore(s) via private and/or public digital networks, as well as onsite E-RealStore(s). These units can be further equipped with smart card readers/writers, which, however, are not required to conduct online electronic purchasing.

b) Onsite user-interface units, which are smart-card-equipped browser-based computers and interactive TVs provided by the site merchant, accessing the local onsite E-RealStore, as well as online E-BranchStore(s) and E-MainStore(s).

BNSDOCID: <WO___0122325A1_I_>

The rationale for defining and establishing an online E-BranchStore is that a single online E-MainStore is not going to satisfy all the incoming web browsing activities, if the

Internet service linkage speed is going to increase from today's common 56k transfer rate by 10 or 20 fold. Even though, a fatter pipe can be installed to accommodate all the incoming inquiries, a huge central on-line E-MainStore becomes impractical due to management complexity and network inefficiency. Therefore, multiple proxy-based online E-Stores, i.e., E-BranchStores, are more ideal, because they can adequately offload some of the E-MainStore's tasks and provide caching capability for rendering specific services, such as E-Commerce services, faster.

Therefore, such commingled online and onsite electronic purchasing-based E-Commerce services for a plurality of smart card users, should include the following:

1. Pre-sale service, which allows users to obtain information from interactive advertising materials displayed online or onsite, and further to direct them to the online E-BranchStore(s) or onsite E-RealStore(s) via online or onsite user interface units through private or public digital networks.
2. Pre-order service, which allows users to browse E-Branchstore and E-RealStore online or onsite, collecting E-Coupons and having them downloaded automatically to their loyalty-based favorite E-RealStore(s).

BNSDOCID: <WO__0122325A1_I_>

3. Order-and-pay service, which allows users to order electronically in either E-BranchStore or E-RealStore with E-Coupon redemption capability and pay electronically with E-Wallet and E-Purse installed on the smart cards. It allows users to choose the payment method by using any credit cards, debit cards, membership cards installed in the E-Wallet or by using E-money-based E-Purse.

4. After-order service, which allows users to receive intermediary E-Currencies after completing the order, in either E-BranchStore or E-RealStore with E-Prize, E-Point capabilities.

5. After-sale customer service, which allows users to connect to E-MainStore and talk to its service department via either online or onsite user-interface units through private or public networks.

In order to facilitate the above electronic purchasing-based E-Commerce services, a commingled online and onsite smart card based interactive advertising infrastructure should be built. However, it can not be built to only accommodate one individual vendor, who nonetheless may have multiple E-BranchStores and E-RealStores. If there are too many individual vendors, each having its own captive smart card users, then the benefit of using smart cards becomes less meaningful, because a single user will be forced to carry many different smart cards from various vendors.

BNSDOCID: <WO___0122325A1_I_>

Therefore, there is a great need in the art for a smart card-based transaction-enabling system, which can create interactive advertising-based E-Commerce service platform that allows smart card users to use one smart card to access all the commingled online and onsite E-Commerce services offered by a plurality of vendors.

BNSDOCID: <WO___0122325A1_I_>

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a smart card-based transaction-enabling system and methods for implementing a cross-vendor-based interactive advertising-capable commingled online and onsite E-Commerce services, so that a plurality of smart card users can be concurrently served via a variety of onsite and online user-interface units.

The present invention comprises a plurality of online-oriented apparatus for building a single vendor-based online E-Commerce infrastructure to host multiple smart card users concurrently.

The present invention further comprises a plurality of onsite-oriented apparatus for building a single vendor-based onsite E-Commerce infrastructure to host multiple smart card users concurrently.

The present invention comprises yet another smart card-based apparatus for incorporating a plurality of single-vendor-based online E-Commerce infrastructures and a plurality of single-vendor-based onsite E-Commerce infrastructures into a combined online and onsite E-Commerce infrastructure for hosting multiple vendors and users concurrently.

The present invention is implemented with a unique method of creating multi-vendor-based E-Commerce boxes for enhancing the aforesaid combined E-Commerce infrastructure into a commingled online and onsite E-Commerce infrastructure, where cross-vendor E-Commerce services can

be generated either online or onsite and be subsequently transacted both online and onsite.

The present invention comprises yet another E-lead-based apparatus for enhancing the aforementioned commingled infrastructure with interactive advertising capabilities, thus creating the preferred smart card-based interactive advertising-capable commingled online and onsite E-Commerce service platform for hosting multiple vendors and smart card users concurrently.

The present invention is further implemented with a unique platform-service-oriented method by creating the E-AdMail-based E-Commerce box for rendering pre-sale e-purchasing as one of the preferred platform's common E-Commerce services. This method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The present invention is implemented with yet another unique platform-service-oriented method by creating the E-Coupon-based E-Commerce box for rendering pre-order e-purchasing as one of the preferred platform's common E-Commerce services. This method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The present invention is implemented with yet another unique platform-service-oriented method by creating the E-Token-based E-Commerce box for rendering loyalty-based e-purchasing as one of the preferred platform's common E-Commerce services. This

ANSDOCID: <WO___ 0122325A1 I >

method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The present invention is implemented with yet another unique platform-service-oriented method by creating the E-Payment-based E-Commerce box for rendering interactive order-and-pay e-purchasing as one of the preferred platform's common E-Commerce services. This method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The present invention is implemented with yet another unique platform-service-oriented method by creating the E-Prize-based E-Commerce box for rendering reward-based e-purchasing as one of the preferred platform's common E-Commerce services. The method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The present invention is implemented with yet another unique platform-service-oriented method by creating the E-Ticket-based E-Commerce box for rendering after-order e-purchasing as one of the preferred platform's common E-Commerce services. The method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The present invention is implemented with yet another unique platform-service-oriented method of incorporating additional commingled E-Commerce services into the preferred platform by

BNSDOCID: <WO__0122325A1_I_>

using one or more of the common E-Commerce boxes, as well as generating individual E-Commerce boxes for additional add-in E-Commerce services. For example, the E-Prize-loyalty-based E-Commerce service uses both the common E-Token and the common E-Prize E-Commerce boxes, whereas the E-Point-based E-Commerce service uses the common E-Payment E-Commerce box and the additional E-Point E-Commerce box.

The present invention is implemented with yet another unique platform-link-oriented method by employing an E-CommBox-based web browser apparatus that can be incorporated into the online user-interface units, such as PCs and TVs in the homes and offices, to communicate with the preferred system's server-based apparatuses. Users can use the E-CommBox-based online user-interface units to access and manage E-Commerce services that are available on the preferred service platform. (UP and modified UP for set-top-box, browser)

The present invention is implemented with yet another unique platform-link-oriented method by employing an E-CommBox-based server software apparatus that can be incorporated into the vendors' online or onsite servers, to communicate with E-CommBox-based browsers, as well as the preferred system's server-based apparatuses. Users can use the E-CommBox-based browser to generate and subsequently transact the preferred platform's E-Commerce box-based services in E-CommBox equipped vendors' online or onsite servers. (VP with E-CommBox)

The present invention is implemented with yet another unique interactive advertising-based method by employing a software apparatus, which can be incorporated in the vendors' online and

onsite servers, to activate the preferred platform's E-Commerce services from the E-Lead-embedded banner ads. This method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The present invention is implemented with yet another unique interactive advertising-based method by employing an remote control unit, which can be incorporated into a TV set to activate the preferred platform's E-Commerce services from E-Lead-associated TV commercials. This method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

In a preferred embodiment, the inventive system employs team/workgroup computers and workgroup server arrays as the preferred building block, so that online servers and onsite server-based apparatuses can be built to be highly available and scaleable, and can accommodate mission-critical smart-card-based applications for more users and vendors concurrently.

The present invention creates a smart-card E-Commerce service-based hosting platform, where commingled online and onsite electronic purchasing services are built-in by using common E-Commerce boxes. Additional E-Commerce services can be incorporated into the hosting platform by using the common E-Commerce boxes, as well as additional add-in E-Commerce boxes. The present invention further is implemented with platform-link-oriented methods and related apparatus, which allow foreign online or onsite servers to incorporate E-Commerce box-based services into their existing services.

BNSDOCID: <WO___0122325A1_I_>

Moreover, the present invention allows a plurality of smart-card users, site merchants, online merchants, advertisers, and service providers to transact with one another concurrently via a variety of platform-service-enabled online and onsite user-interface units.

As used herein, the term "services" means "goods and/or services"; the term "users" means "users","customers" and "purchasers"; and the term "vendors" means "vendors", "merchants", "retailers" and "sellers".

BNSDOCID: <WO___0122325A1_I_>

BRIEF DESCRIPTION OF THE DRAWINGS

The aforementioned features and advantages of the present invention, as well as additional features and advantages thereof will be more fully understood hereinafter, as a result of a detailed description of a preferred embodiment thereof, when taken in conjunction with the following drawings in which:

FIG. 1A is a schematic diagram illustrating a preferred method of implementing a single-vendor-multi-user based online E-Commerce infrastructure, in which a plurality of online-based apparatus are employed and multiple smart card users can access for online E-Commerce services via online user-interface units in the homes and offices;

FIG. 1B is a schematic diagram illustrating a preferred method of implementing a single-vendor-multi-user based onsite E-Commerce infrastructure, in which a plurality of onsite-based apparatus are employed and multiple smart card users can access for onsite E-Commerce services via onsite user-interface units at a commercial site;

FIG. 1C is a schematic diagram illustrating a preferred method of implementing a multi-vendor-multi-user-based combined online and onsite E-Commerce infrastructure, in which a plurality of smart card-based apparatus are employed and smart card users can access for E-Commerce services from each individual vendor via online or onsite user-interface units;

BNSDOCID: <WO___0122325A1_I_>

FIG. 1D is a schematic diagram illustrating the preferred method of implementing smart card-based E-Commerce boxes, which enable cross-vendor E-Commerce services to be generated either online or onsite and transacted both online and onsite, thereby enhancing the aforementioned combined infrastructure into a commingled online and onsite E-Commerce infrastructure;

FIG. 1E is a schematic diagram illustrating the preferred method of implementing interactive advertising-based infrastructure, in which a plurality of smart card-based apparatuses are employed to enhance the aforesaid commingled online and onsite E-Commerce infrastructure;

FIG. 1F is a schematic diagram illustrating the preferred method of implementing the preferred embodiment of present invention, in which a plurality of upgraded apparatuses are employed, creating a smart card-based interactive advertising-capable commingled online and onsite E-Commerce service platform;

FIG. 2A is a functional block diagram, illustrating the preferred platform-service-based method of implementing an E-AdMail-based E-Commerce box for a smart card user, providing pre-sale E-Lead-based e-purchasing as one of the preferred platform's common E-Commerce services;

FIG. 2B(1) is a functional block diagram, illustrating the preferred platform-service-oriented method of implementing E-Coupon-based E-Commerce box for a smart card user, providing pre-order E-Lead-push-based e-purchasing as one of the preferred platform's common E-Commerce services;

3NSDOCID: <WO___0122325A1_I_>

FIG. 2B(2) is a functional block diagram, illustrating the preferred platform-service-oriented method of implementing the aforementioned E-Coupon-based E-Commerce box for a smart card user, providing pre-order E-Lead-pull-based e-purchasing as one of the preferred platform's common E-Commerce services;

FIG. 2C is a functional block diagram, illustrating a preferred platform-service-oriented method of implementing E-Token-based E-Commerce box for a smart card user, providing pre-order E-Coupon-loyalty-based e-purchasing as one of the preferred platform's common E-Commerce services;

FIG. 2D is a functional block diagram, illustrating a preferred platform-service-oriented method of implementing E-Payment-based E-Commerce box for a smart card user by using E-Wallet and E-Purse equipped smart cards, providing order-and-pay E-Token-based e-purchasing as one of the preferred platform's common E-Commerce services;

FIG. 2E is a functional block diagram, illustrating a preferred platform-service-oriented method of implementing E-Prize based E-Commerce box for a smart card user, providing after-order onsite E-Payment-based e-purchasing as one of the preferred platform's common E-Commerce services;

FIG. 2F is a functional block diagram, illustrating a preferred platform-service-oriented method of implementing E-Ticket-based E-Commerce box for a smart card user, providing online after-order online E-Payment-based e-purchasing as one of the preferred platform's common E-Commerce services;

BNSDOCID: <WO__0122325A1_I_>

FIG 2G is a functional block diagram, illustrating the preferred platform-service-oriented method of implementing the E-Prizes-loyalty-based E-Commerce service, by using one or more of the preferred platform's common E-Commerce boxes;

FIG 2H is a functional block diagram, illustrating the preferred platform-service-oriented method of implementing the E-Ticket-loyalty-based E-Commerce service, by using one or more of the preferred platform's common E-Commerce boxes;

FIG 2I is a functional block diagram, illustrating the preferred platform-service-oriented method of implementing the E-Point-based E-Commerce service, by using one or more of the preferred platform's common E-Commerce boxes, as well as by generating additional E-Point E-Commerce box;

FIG 2J is the functional block diagram, illustrating the preferred method of implementing behavior-defined intermediary currencies, such as E-Coupons, E-Tokens, E-Prizes, E-Points, as to how they are created and transacted, which includes, but not limits to, transferred, duplicated, updated, converted, redeemed, revoked and deleted, on the preferred service platform;

FIG. 3 is a schematic diagram, illustrating a preferred platform-link-oriented method of implementing E-CommBox-based browsers (UP) in users' PCs and TVs and E-CommBox-based server programs (VP) in vendors' online or onsite servers, so that preferred platform's e-commerce box-based services can be extended;

BNSDOCID: <WO___0122325A1_I_>

FIG. 3A is a functional block diagram illustrating a preferred interactive advertising-based method of implementing E-Lead-based information in web-based banner-ads, so that E-Lead data can be automatically generated by UP, and can further be uploaded to activate the preferred platform's E-AdMailBox service;

FIG. 3B is a functional block diagram illustrating a preferred interactive advertising-based method of implementing E-Lead-based information in web-based banner ads, so that E-Lead data can be automatically generated by UP, and can further be uploaded to activate the preferred platform's E-CouponBox service;

FIG. 4 is a schematic diagram, illustrating a preferred E-Lead-based remote control module, which contains both the handheld unit and the base unit, so that E-Lead data can be generated from TV commercials by the handheld unit and stored in the base unit;

FIG. 4A is a functional block diagram, illustrating a preferred interactive advertising-oriented method of incorporating E-Lead-based remote-control module, allowing E-Lead data to be generated from TV commercials and further uploaded to activate the preferred platform's E-AdMailBox service;

FIG. 4B is a functional block diagram, illustrating a preferred interactive advertising-oriented method of incorporating E-Lead-based remote-control module, allowing

BNSDOCID: <WO__0122325A1_I_>

E-Lead data to be generated from TV commercials and further uploaded to activate the preferred platform's E-CouponBox service;

FIG. 5A is a schematic diagram illustrating a preferred integration, in which a single preferred inventive system, external linked vendors' online and onsite servers, as well as online user-interface units are included;

FIG. 5B is a schematic diagram illustrating a preferred integration, in which multiple preferred inventive systems, external linked vendors' online and onsite servers, as well as online user-interface units are included;

FIG. 6A is a schematic diagram illustrating an 8-TeamProcessor-based workgroup server array;

FIG. 6B is a schematic diagram illustrating a 2-TeamProcessor-based commercial PDA system;

FIG. 6C is a functional block diagram, illustrating a preferred embodiment of commercial PDAs, iACT, iPOS and iPOP;

FIG. 6D is a function block diagram, illustrating a preferred embodiment of a remote control handheld unit;

FIG. 6E is a functional block diagram, illustrating a preferred embodiment of a remote control base unit.

FIG. 7A1 and 7A2, each illustrates an implementation of a preferred data structure and data flow onto a preferred application-oriented workgroup server cluster using multiple 2-TeamProcessor server arrays to function as SDBS-1 and SDBS-n;

FIG. 7B1 and 7B2, each illustrates a methodical implementation of a preferred data structure and data flow onto a preferred application-oriented workgroup server cluster using multiple 8-TeamProcessor server arrays to function as XDBS-1 and XDBS-n;

FIG. 7C1 and 7C2, each illustrates a methodical implementation of a preferred data structure and data flow onto a preferred application-oriented workgroup server cluster using multiple 8-TeamProcessor server arrays to function as VDBS-1 and VDBS-n;

FIG. 7D1 and 7D2, each illustrates a methodical implementation of a preferred data structure and data flow onto a preferred application-oriented workgroup server cluster using multiple 8-TeamProcessor server arrays to function as UDBS-1 and UDBS-n;

FIG. 7E1 and 7E2, each illustrates a methodical implementation of a preferred data structure and data flow onto a preferred application-oriented workgroup server cluster using multiple 8-TeamProcessor server arrays to function as TDBS-1 and TDBS-n;

BNSDOCID: <WO___0122325A1_I_>

FIG. 7F1 and 7F2, each illustrates a methodical implementation of a preferred data structure and data flow onto a preferred application-oriented workgroup server cluster using multiple 8-TeamProcessor server arrays to function as E-ShowCase-based ADBS-1 and ADBS-n;

FIG. 7G1 and 7G2, each illustrates a methodical implementation of a preferred data structure and data flow onto a preferred application-oriented workgroup server cluster using multiple 8-TeamProcessor server arrays to function as E-AdPage-based ADBS-1 and ADBS-n;

FIG. 7H1 and 7H2, each illustrates a methodical implementation of a preferred data structure and data flow onto a preferred application-oriented workgroup server cluster using multiple 8-TeamProcessor server arrays to function as E-MarketPlace-based ADBS-1 and ADBS-n;

FIG. 7I1 and 7I2, each illustrates a methodical implementation of a preferred data structure and data flow onto a preferred application-oriented workgroup server cluster using multiple 8-TeamProcessor server arrays to function as E-Classified-based ADBS-1 and ADBS-n;

FIG. 7J1 illustrates a methodical implementation of a preferred data structure and data flow onto a preferred application-oriented workgroup server cluster using multiple 8-TeamProcessor server arrays to function as E-MarketPlace Production-based PDBS;

3NSDOCID: <WO__0122325A1_I_>

FIG. 7J2 illustrates a methodical implementation of a preferred data structure and data flow onto a preferred application-oriented workgroup server cluster using multiple 8-TeamProcessor server arrays to function as E-Classified Production-based PDBS; and

FIG. 8 is a schematic diagram illustrating the preferred embodiment of the present inventive system, in which online servers are implemented by using workgroup server array, as described in provisional patent application Serial No. 60/135,318 filed on May 20, 1999 and onsite servers are implementing by commercial PDA system, as described in provisional patent No. 60/135,318 together with other platform-centric apparatus.

BNSDOCID: <WO___0122325A1_I_>

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The present invention comprises server-based hardware and software apparatus to build online E-Commerce infrastructure and onsite E-Commerce infrastructure. The invention comprises inventive merge-based apparatus to combine a plurality of online and onsite infrastructures into a unified online and onsite infrastructure. The present invention is further implemented with a unique method of creating smart card-enabled E-Commerce boxes for converting the aforementioned combined online and onsite E-infrastructure into a commingled online and onsite E-Commerce infrastructure. Moreover, additional interactive advertising-based apparatus are implemented to enhance the aforesaid commingled online and onsite infrastructure, thus constituting a preferred embodiment of the present invention, which creates a smart card-based interactive advertising-capable commingled online and onsite E-Commerce service platform for hosting multiple vendors and users. The preferred embodiment of the present invention is further implemented with additional platform-service-oriented and platform-link-oriented methods and apparatus, which take shapes in commingled online and onsite application software-based programs and hardware devices. In so doing, the basic built-in E-Commerce services can be installed, add-in E-Commerce services can be incorporated based on built-in E-Commerce boxes, and the preferred platform E-Commerce services can be extended and triggered from foreign online or onsite servers via online or onsite user-interface units.

As shown in FIG. 1A, a preferred single-vendor-multi-user based online E-Commerce infrastructure contains a plurality of online-oriented apparatus, which include an Internet-based router (10), a DNS (20), a WWW server (30), a number of Workstations WS (40), a smart card user database server (130), an online E-Store database server (140), and transaction summary database server (150). This infrastructure can further be accessed via web-browser-based PCs (1000, 3000) and web-browser-based TVs with digital set-top-boxes (2000, 4000) by either smart card users using smart cards (100) with optional smart card readers (110, 120) or non smart card users.

The router (10) first allows the legitimate incoming browsing requests from any of the browser-based PCs and TVs (1000, 2000, 3000, 4000) to enter and direct them to DNS (20), which returns the WWW server's IP address back to the browser. The browser then connects directly to WWW server (30), which sends back the indexed home page. The smart card user at apparatus 1000 or apparatus 2000 can either enter smart card ID and PIN on the page, if there is no smart card readers, or insert the smart card (100) into the smart card readers (110, 120) and enter PIN on the page. The browser can then reconnect to the WWW server that further passes the information to smart card based servers, i.e., user database server (130) and online E-Store database server (140). These smart card service-based online servers contain three major concurrent programs: 1) browser-based Server Program (SP) with HTTP-based and ASP-based capabilities, 2) Database Program (DP) with database access and database management capabilities, 3) file Transfer client and server Program (TP)

BNSDOCID: <WO__0122325A1_I_>

with FTP-based and proprietary socket-based file transfer capabilities. USP (121) in the user database server (130) handles all the incoming requests and generates subsequent database files for UDP (125) to update the user database and UTP (123) can then transfer the updated transaction files to TTP (143) in the Transaction summary database server (150). Similarly, ESP (131) in the online E-Store database server (140) handles all the incoming requests and generates subsequent database files for EUP (135) to update the online E-Store database and ETP (133) can then transfer the updated transaction files to TTP (143). TDP (145) then update the overall transaction summary database based on files received from TTP and to generate the new consolidated transaction database files, which will be transferred from TTP back to UTP and ETP. UDP and EDP further update the user database and online E-Store database, based on files received from UTP and ETP respectively, and complete the final update.

As for non-smart card users at apparatuses 3000 or 4000, the indexed home page will dictate what services are allowed and the fill-ins will trigger non-smart card based services. Every server of the present invention is capable of handling non-smart card based services, as described by USP (121), ESP (131) and TSP (141), if required.

The preferred single-vendor smart card-based online E-Commerce infrastructure (190) encompasses a server cluster, which is comprised of multiple servers, each having its own application-oriented database, as maintained by UDP (125), EDP (135) and TDP (145), creating a distributed database environment. The infrastructure (190) can be further maintained and managed by LAN-attached workstations WS (40).

BNSDOCID: <WO 0122325A1 I >

Other server-cluster configurations using multiple-tiered servers, such as load balancing servers, application servers and database servers, can also be used to build single-vendor smart card-based online E-Commerce infrastructure. The front-end application servers, each containing SP-based, database client-access and TP-based programs, handle user's requests from apparatus 1000, 2000, 3000, and 4000. The backend centralized database servers, each containing database management and TP-based programs, handle requests from application servers and provide them with smart card-based online user database, online E-Store database and online transaction database services.

As shown in FIG. 1B, a preferred single-vendor-multi-user based onsite E-Commerce infrastructure contains onsite-oriented apparatus, which include smart cards (100), a plurality of smart card-based onsite user interface units (210), and an onsite server cluster (290).

The smart card user can access any of the onsite user-interface units (210), which can be PC-based and equipped with smart card reader, by using the smart card (100). These user-interface units are networked to the onsite server cluster (290), which is comprised of a smart card-based onsite user database server (230), an onsite E-Store database server (240), and onsite transaction summary database server (250).

The smart card user can insert the smart card into the user-interface unit and enter PIN, which is to be authenticated by the smart card-based user database server (230). After authentication, the legitimate smart card user can access the

BNSDOCID: <WO__0122325A1_I_>

service menu displayed on the user-interface unit. The user can interactivity select different services, which generates user's interactivities that can be further passed to smart card based onsite servers, i.e., user database server (230) and onsite E-Store database server (240). These onsite servers contain three major concurrent programs:

1) browser-based service program (SP) with HTTP-based and ASP-based capabilities,

2) database program (DP) with database access and database management capabilities,

3) file transfer program (TP) with FTP-based and socket-based file transfer capabilities.

USP (221) in the user database server (230) handles all the incoming requests and generates subsequent database files for UDP (225) to update the user database and UTP (223) can then transfer the updated transaction files to TTP (243) in the Transaction summary database server (250). Similarly, ESP (231) in the onsite E-Store database server (240) handles all the incoming requests and generates subsequent database files for EUP (235) to update the onsite E-Store database and ETP (233) can then transfer the updated transaction files to TTP (243). TDP (245) then update the overall transaction summary database based on files received from TTP and to generate the new consolidated transaction database files, which will be transferred from TTP back to UTP and ETP. UDP and EDP further update the onsite user database and onsite E-Store database, based on files received from UTP and ETP respectively, and complete the final update.

BNSDOCID: <WO___0122325A1_I_>

The preferred single-vendor smart card-based onsite E-Commerce infrastructure (290) encompasses a server cluster, which is comprised of multiple servers, each having its own application-oriented database, as maintained by UDP (225), EDP (235) and TDP (245), creating a distributed database environment. The infrastructure (290) can be further maintained and managed by LAN-attached workstations WS (40).

Other server-cluster configurations using multiple-tiered servers, such as load balancing servers, application servers and database servers, can also be used to build single-vendor smart card-based onsite E-Commerce infrastructure.

The front-end application servers, each containing SP-based, database client-access and TP-based programs, handle user's requests from various user-interface units (210). The backend centralized database servers, each containing database management and TP-based programs, handle requests from application servers and provide them with smart card-based onsite user database, onsite E-Store database and onsite transaction database services.

The onsite server cluster can also be replaced by using a single server, which is to be equipped with all the required programs, such as USP (221), UDP (225), ESP (231), EDP (235), TSP (241), TDP (245) and a UTP (223)/ETP (233)/TTP (243) consolidated TP-based program. This is ideal for a small physical site of a vendor. However, for mission critical purposes, another server is required to act as the backup fail-over server.

BNSDOCID: <WO__0122325A1_I_>

As shown in FIG. 1C, a preferred smart card-based multi-vendor combined online and onsite E-Commerce infrastructure contains inventive apparatus (310-350) as follows:

1. SDBS (310), which is created by transforming onsite server cluster (290). It is equipped with online-based communication boxes, created by UTP (223), ETP (233) and TTP (243). It belongs to the onsite-portion of the combined infrastructure (390) and it can communicate with the online-portion of the combined infrastructure via Intranet connections, which can be VPN-based (Virtual Private Network), SSL-based (Secure Socket Layer) or the like.

2. XDBS (320), which is created as an onsite proxy server. It is equipped with onsite-based communication boxes, which are maintained by XDP (315), transferred by XTP (313) and serviced by XSP (311). It belongs to the online-portion of the combined infrastructure (390) and it can communicate with SDBS (310) via Intranet connections.

3. UDBS (330), which is created as a merged server. It is comprised of USP (321), UTP (323) and UDP (325), while the UDP-based database contains all the online users' records from a plurality of single-vendor-based user database servers (130) and all the onsite users' records from a plurality of single-vendor-based user database servers (230). It belongs to the online-portion of the combined infrastructure (390).

4. VDBS (340), which is created as a merged server. It is comprised of VSP (331), VTP (333) and VDP (335), while the VDP-based database contains all the online E-Stores from a plurality of multiple single-vendor-based E-Store database

servers (140) and all the onsite E-Stores from a plurality of single-vendor-based E-Store database servers (240). It belongs to the online-portion of the combined infrastructure (390).

5. TDBS (350), which is created as a merged server. It is comprised of TSP (341), TTP (343) and TDP (345), while the TDP-based database contains all the online transaction summary records from a plurality of single-vendor-based transaction database servers (150) and all the onsite transaction summary records from a plurality of single-vendor-based transaction database servers (250). It belongs to the online-portion of the combined infrastructure (390).

The smart card users can access PCs (1000) or TVs (2000) or onsite user-interface units (210) with smart cards (100) to utilize E-Store-based E-Commerce services that are generated by any of the online and onsite vendors either online or onsite.

Generally, E-Commerce services by online and onsite vendors contain service-based data items, or value items or both. Each service includes a number of transactions, which at least include transactions to create, to convert, to delete data items and transactions to increase, to decrease, to delete value items. To simplify illustration, either data items or value items are hereinafter all referred as items.

In addition, E-Commerce services offered by all the online and onsite vendors included in the combined online and onsite E-Commerce infrastructure (390), can further be grouped into

BNSDOCID: <WO__0122325A1_I_>

the following 3 categories: 1) the common services, 2) group-unique services, 3) individual-unique services. Electronic purchasing-based services, including pre-sale, pre-order, order and pay, after-order and after-sale services as defined above, are examples of the common E-Commerce services that every online and onsite vendor can offer. Industry-specific E-Commerce services, such as banking, are examples of group-unique services, in which several banks may offer the same type of E-Commerce services, such as electronic checking. Community-based rapid transit E-Commerce services by local transit service providers, whose transactions are hinged on particular bylaws stipulated by the local government is considered to be one of the individual-unique E-Commerce services.

Within the combined online and onsite infrastructure (390), user's transactions and related items stored in UDBS (330) are categorized under different vendors, which limits the grouping of E-Commerce services, thereby hindering the cross-vendor applications to be established. It is because that E-Commerce service-based items, for instance, E-Coupons, created by a particular online vendor can not be transacted via onsite user-interface units of another onsite vendor due to no available information for the onsite server to base on. Even if the onsite server can download instantly from the UDBS (330), the online real-time readiness has to be reliably established, creating a costly and chaotic processing environment. Furthermore, even the online real-time central access doesn't pose a problem, however, if there are multiple cross-vendor services to be processed concurrently, the vendor-based database structure as shown in UDBS (330) can not

NSDOCID: <WO___0122325A1_I_>

perform well, due to the constant cross-over selections from one vendor-based data tables to another. Even worse, a subset of the UDBS (330) can not be established in any onsite server cluster to offer distributed off-line transaction processing capability, due to the fact that there is no criteria as to which vendor-base database table is to be included or excluded.

As shown in FIG. 1D, the present invention is further implemented with a inventive method, which transforms all the vendor-centric database tables into an array of user-centric E-Commerce box service-based database tables. In so doing, the subset of the aforementioned E-Commerce box-based database tables, either in terms of number of users, or number of database tables, can be established in every SDBS (310), based on the number of users patronized and the number of services offered. Moreover, each user's service-based items can be transferred within the infrastructure, not only enabling online or onsite vendors to add new users and new E-Commerce services, but also enabling users to access online or onsite E-Commerce services from various vendors and transact them both online and onsite.

Before the transformation, an E-Commerce service-based database item (i, j, k_j), can be defined by the service offered by vendor-i, categorized by service j, based on the k^{th} transaction for service j. The database item (i, j) is comprised of a data string, in which relevant data fields are cascaded together. Therefore, a particular user's record of a particular vendor-i is comprised of (1) user-basic item, which includes, but not limits to, user's name, address, personal

BNSDOCID: <WO__0122325A1_I_>

profile and smart card-based PIN, (2) all the database items for different services based on different transactions before consolidation by UDP (325).

A plurality of vendor-centric smart card user records can be transformed into user-centric vendor service records by the following five (5) processes:

1. Classify all the vendor-based E-Commerce services into common-based, group-based and individual-based, as illustrated by the process (1). Where p is the number of common services, q is the number of group-based services, r is the number of individual-based services, p>=1, (i/2 absolute value)>=q>=0, and i>=r>=0. In addition, SM-1 to SM-m, where m is the number of all the onsite vendors, i.e., site merchants, where m>=1. OM-1 to OM-n, where n is the number of all the online vendors, i.e., online merchants and service providers, where n>=1. User records for user-x based on vendor-i, who may be any of the onsite and online vendors, where m+n>=i>=2.

2. Consolidate user-x's basic item by deleting redundant ones and put only one basic item into a template for user-x, as illustrated by the process (2).

3. Gather the common service 1-based items form 1,1,1 to $1,1,k_1$ of vendor 1, items from i,1,1 to i,i,k_1 of vendor-i, and similar items of all the other vendors, and further put them all into additional templates for user-x, as illustrated by the process (3). The process further inserts each item with U/SC-ID#. Similar processes are performed for the common-based from the 2^{nd} to the p^{th} services, the group-based from the $(p+1)^{th}$ to the $(p+q)^{th}$ services, and the individual-based from $(p+q+1)^{th}$ to $(p+q+r)^{th}$ services.

BNSDOCID: <WO___0122325A1_I_>

4. Repeat processes (1) to (3) for all the users other than user-x, as illustrated by the process (4).

5. Group all the same service-based templates from all the users into one database table and use U/SC-ID# for each user as the index key. Further process the table with the built-in database program to enable the net item effect symbolized by Σ, which evens out add-based and delete-based transaction items, as illustrated by the process (5).

The results are as follows:

1) Common E-Commerce box 1 for common E-Commerce service 1: containing all the users' Items serviced by all the vendors.

2) Common E-Commerce box p for common E-Commerce service p: containing all the users' Items serviced by all the vendors.

3) Group-based E-Commerce box p+1 for group-based E-Commerce service p+1: containing potentially all the users' Items serviced by a particular group of vendors.

4) Group-unique Box p+q: containing potentially all the users' Items serviced by a particular group of vendors.

5) Individual-unique Box p+q+1: containing potentially all the users' Items serviced by a particular vendor.

6) Individual-unique Box p+q+r: containing potentially all the users' Items serviced by a particular vendor.

BNSDOCID: <WO__ 0122325A1_I_>

After the transformation, an E-Commerce box, which is a service-based database object-oriented table is established. Furthermore, each individual user's E-Commerce service items can further be transacted, which includes, but not limited to, transferred, duplicated, updated, converted, redeemed, revoked and deleted by other subsequent transactions triggered by that individual smart-card user or authorized parties.

Moreover, the subset of the E-Commerce-box database in UDBS can be established in any onsite server SDBS (310) that will have a finite number of users with finite number of services, which in terms can be interpreted as the loyalty-based customers with relevant services offered by a particular onsite vendor. The personal smart card can also store the E-Commerce box-based service items that can be further transacted via online and onsite user-interface units due to smart card's portability.

Various additional cross-vendor E-Commerce services can then be integrated into the inventive system by using E-Commerce boxes, in which items can be created either online or onsite and subsequently transacted both online and onsite, enabling these E-Commerce services to function as commingled online and onsite E-Commerce services. For examples, a particular online merchant's E-Coupons can be used with an array of contracted onsite stores and other online e-stores, or site merchant's E-Points and E-Prizes can be redeemed in an array of contracted online e-stores and other onsite stores.

3NSDOCID: <WO___0122325A1_I_>

In addition, various proprietary items stored in the same service-based E-Commerce box from various vendors for all the potential users can be further contractually converted into a common publicly tradable item, creating a single item-based E-Commerce box that eliminates the confusion as to maintaining various items from various vendors.

Therefore, this inventive method enhances a combined online and onsite E-Commerce infrastructure into a commingled online and onsite E-Commerce infrastructure, where E-Commerce box-based transaction items can be stored in smart cards, the inventive system's onsite and online servers, enabling users to access and transact both online and onsite.

The inventive E-Lead-based interactive advertising will generate E-Lead-based data, whenever viewers/users are prompting to the E-Lead-based content by triggering the interest button via various E-Lead-enabled onsite user-interface units. E-lead data are proprietary information, which contains, but not limits to, ad ID#, channel ID#, time-date, User/Smart card ID#, advertiser/vendor ID#, coupon ID#, location ID# and onsite user-interface unit ID#, and are established between the advertiser and the service aggregator. The E-Lead data can then be deciphered by the inventive system, which further triggers a series of subsequent E-Commerce box-based services for viewers/users, based on the advertiser's request previously established in the advertising content and control form supervised by the service aggregator.

BNSDOCID: <WO___0122325A1_I_>

As shown in FIG. 1E, a plurality of E-Lead-based apparatuses (400-490) are implemented onto the aforesaid commingled online and onsite E-Commerce infrastructure. These inventive apparatus facilitate advertiser's E-Lead-based form setup, content production and content delivery, content storage, content displays, content access and E-Lead storage.

1. ADBS (400), which is created as an online authoring server, providing E-ShowCase-based interactive advertising for onsite use. It contains E-Lead-based ad content and ad control form, which allows advertisers to use web browsers to set up directions as to how to produce E-ShowCase-base video, graphical page and text-only ad contents, as well as how to control E-Lead based E-ShowCase service programs. Any of the IA-WS-based workstations (440) gathers instructions from ADBS (400) or from the advertiser's pre-made ad materials via mail-in CDs or via downloads, produces E-Lead-embedded E-ShowCase ad contents and ad controls, and returns them back to ADBS (400). ADBS (400), which keeps the database and transaction records for all the E-ShowCase advertisers, further sends the ad contents and the ad controls to XDBS (320), so that they can be downloaded to the right SDBS (310), which is pre-chosen by the advertiser as stated in the control program. SDBS (310) installs the ad contents and the ad controls, which include, but not limit to, advertising, E-Coupon, loyalty, PO and linkage programs, thereby upgrading the single-vendor-based onsite E-Store into an E-RealStore. In addition, onsite user-interface units (210) are also upgraded into various E-Lead-based user-interface units, iACT (470), iPOS (480) and iPOP (490), so that E-Lead-based E-ShowCase ad contents can be displayed and accessed, as well as the associated E-Lead data can be generated and stored.

1) iACT units (470): (interactive Advertising-Coupon-Token unit), which is created for generating E-Lead data. It is equipped with a smart card reader, a printer and a number of magnetic card readers. If the smart card user is interested in the ad shown on the in-store TV with E-ShowCase video, the user can access any nearby iACT unit and simply swipe the smart card through a magnetic card read. The reader is built-in with at least 3 Interest buttons, i.e., the current-ad button, the 1ad-ahead button and the 2ad-ahead button, so that the user can push the desired ones to initiate the subsequent e-commerce services. Once any of the interest buttons is pushed, the E-Lead data, which contain, but not limit to, time&date, user ID#, location ID# and iACT ID#, are generated and stored in the iACT unit, which can later upload the E-Lead data to the SDBS (310).

2) IPOS units (480): (interactive Point-of-Sale unit), which is created for providing onsite-based electronic purchasing. It is equipped with a smart card reader and a 13@ touch-screen LCD, showing E-ShowCase graphical pages on the right hand side. The smart card user can touch the screen and generate E-Lead data that can be stored in the iPOS unit and subsequently uploaded to the SDBS (310).

3) iPOP units (490): (interactive Point-of-Purchase units) which is created for providing online-based electronic purchasing. It is equipped with a keyboard, a smart card reader, a printer, a magnetic card reader and a 19@ touch-screen TV or VGA monitor, showing E-ShowCase video when not being interacted. Customers can swipe smart cards through the magnetic card reader and push any of the three interest

BNSDOCID: <WO__0122325A1_I_>

buttons on the reader to generate E-Lead data that can be stored in the iPOP unit and subsequently uploaded to the SDBS (310).

2. ADBS (410), which is created as an online authoring server, providing E-AdPage-based interactive advertising for online use. It contains E-Lead-based advertising content and control form, which allows advertisers to use web browsers to set up directions as to how to produce E-AdPage-base audio/video, graphical page ad contents, as well as how to control E-Lead based E-AdPage service programs. Any of the IA-WS-based workstations (440) gathers instructions from ADBS (410) or from the advertiser's pre-made ad materials via mail-in CDs or via downloads, produces E-Lead-embedded E-AdPage ad contents and ad controls, and returns them back to ADBS (410). ADBS (410), which keeps the database and transaction records for all the E-AdPage advertisers, further sends the ad contents and the ad controls to VDBS (340) that houses the E-Store of that particular advertiser/vendor. VDBS installs the ad contents and the ad controls, which include, but not limit to, advertising, E-Coupon, loyalty, PO and linkage programs, thus upgrading a regular single-vendor-based online E-Store into an E-BranchStore, which can also redirect the subsequent requests to the vendor's online or onsite servers. E-BranchStores can further be accessed by browsers via the iPOP units (490), which allow E-Lead-based E-AdPage ad contents to be displayed and accessed, as well as the associated E-Lead data to be generated and stored.

3NSDOCID: <WO___0122325A1_I_>

3. ADBS (420), which is created as an online authoring server, providing E-MarketPlace-based interactive advertising for online use. It contains E-Lead-based ad content and ad control form, which allows advertisers, either vendors or users, to use web browsers to set up directions as to how to produce E-MarketPlace-base audio/video, graphical page ad contents, as well as how to control E-Lead based E-MarketPlace service programs. Any of the IA-WS-based workstations (440) gathers instructions from ADBS (420) or from the advertiser's pre-made ad materials via mail-in CDs or via downloads, produces E-Lead-embedded E-MarketPlace ad contents and ad controls, and returns them back to ADBS (420). ADBS (420), which keeps the database and transaction records for all the E-MarketPlace advertisers, further sends the ad contents and the ad controls to PDBS (450). PDBS installs the ad contents and the ad controls, which include, but not limited to, advertising and reply programs, thus creating an E-MarketPlace-based bulletin board. This electronic bulletin board can be further accessed by browsers via the iPOP units (490), which allow E-Lead-based E-MarketPlace ad contents to be displayed and accessed, as well as the associated E-Lead data to be generated and stored.

4. ADBS (430), which is created as an online authoring server, providing E-Classified-based interactive advertising for online use. It contains E-Lead-based advertising content and control form, which allows advertisers, either vendors or users, to use web browsers to set up directions as to how to produce E-Classified audio/video, graphical page ad contents, as well as how to control E-Lead based E-Classified service

BNSDOCID: <WO___0122325A1_I_>

programs. Any of the IA-WS-base workstations (440) gathers instructions from ADBS (430) or from the advertiser's pre-made ad materials via mail-in CDs or via downloads, produces E-Lead-embedded E-Classified ad contents and ad controls, and returns them back to ADBS (430). ADBS (430), which keeps the database and transaction records for all the E-Classified advertisers, further sends the ad contents and the ad controls to PDBS (460). PDBS (460) installs the ad contents and the ad controls, which include, but not limited to, advertising and reply programs, thus creating an E-Classified-based bulletin board. This electronic bulletin board can be further accessed by browsers via the iPOP units (490), which allow E-Lead-based E-Classified ad contents to be displayed and accessed, as well as the associated E-Lead data to be generated and stored.

By installing E-Lead-based interactive advertising infrastructure to enhance the commingled online and onsite E-Commerce infrastructure, advertisers, either vendors or users, are allowed to install E-Lead-based interactive advertising services and to update the ad contents and ad controls via online user-interface units to access ADBS 400, 410, 420, 430 respectively.

As shown in FIG. 1F, the preferred embodiment of the present invention is implemented with upgraded apparatuses (500-540), creating a smart card-based interactive advertising-capable commingled online and onsite E-Commerce service platform that hosts a plurality of smart card users, online and onsite vendors concurrently via online and onsite user-interface units.

INSDOCID: <WO 0122325A1 | >

The upgraded apparatus may be described as follows:

1. Smart card (500), which is created with E-Commerce Box capability, providing storage for E-Commerce box-based data items.

2. SDBS (510), which is basically a SDBS (310), but is further upgraded with E-Commerce boxes, E-RealStore, and onsite user-interface units 470, 480 and 490.

3. UDBS (530), which is basically a UDBS (330), but is upgraded with smart card-based E-Commerce boxes.

4. VDBS (540), which is basically a VDBS (340), but is upgraded with E-BranchStore.

5. DP+: which is basically DP in every server-based apparatus, but is further upgraded with the common tables, which include, but not limit to, (1) the IP of all User/Smart Card ID# and Vendor/Smart card ID#, (2) Transaction-ID-based charges, and (3) bad User/Smart Card ID# and Vendor/Smart Card ID#. In so doing, the data integrity among inter-server communications can be assured, based on the common tables, which can be further maintained by management-based workstations (40).

The preferred service platform allows smart card users to access commingled online and onsite E-Commerce services by using E-Commerce box-based smart cards (500) via online user-interface units 1000 and 2000 or via onsite user-interface units 470, 480 and 490.

BNSDOCID: <WO___0122325A1_I_>

To facilitate the production of interactive multimedia-based content, the present invention devises a unique content format process, from which the potential advertisers can utilize to produce the interactive multimedia-based content easily. The content created can be easily transferred and further updated by the advertiser by accessing the Internet server. The content stored in the Internet server can then be easily accessed and readily converted into the displayable content, which can be sent to each site, either by downloading through the intranet infrastructure or by sending through digital video disks.

The present invention, which creates a preferred commingled online and onsite service platform, is further implemented with platform-service-oriented methods for creating a series of commingled online and onsite electronic purchasing-based services, which include E-AdMails, E-Coupons, E-Tokens, E-Payments, E-Prizes and E-Tickets, as the platform's common E-Commerce services. These basic services are built-in with E-Commerce boxes that are commonly applicable to all the platform participants. Furthermore, additional vendor-unique E-Commerce services from various service providers can be added into the service platform based on the common E-Commerce boxes, as well as additional E-Commerce boxes.

The preferred service platform is first implemented with a unique platform-service-oriented method by creating E-AdMail-based E-Commerce box, hereinafter referred as E-AdmailBox, for rendering the pre-sale E-Lead-based e-purchasing as one of the preferred platform's common E-Commerce services.

INSDOCID: <WO 0122325A1 I >

As shown in FIG. 2A, the preferred method of implementing an E-AdMailBox for a particular smart card user-x is illustrated. When the smart card user-x accesses any of the E-Lead-based user-interface units (470, 480, 490) and reacts to the E-Lead-based content, the E-lead data associated with the ad, such as time/date, user/smart card ID# (U/SC ID#), will be generated and stored in the respective user-interface unit. A number of E-Lead data gathered over a period of time in each user-interface unit can then be uploaded to the SDBS (510). Based on the time/date E-Lead data, the SDBS, which has previously received the ad content and ad control information, will create the first E-AdMail-based item, which includes, but not limits to, U/SC ID#, ad ID#, advertiser/vendor ID#, all cascaded together as one data string. The first E-AdMail-based data item for a particular vendor-a, as symbolized by $Item_n$= (a, j_1) defined as the n^{th} database item for service j_1 from vendor-a, can then be uploaded from the in-out communication box installed in SDBS (510) to the XTP (313) of XDBS (320). The XDP (315) in XDBS can further re-process the first data-stringed item by inserting additional data, such as UDBS-IP, based on U/SC ID#, and create the second data item, which can be symbolized by $Item_n$== (a, j_1). The XTP can then locate the right UDBS (530) that contains the user'x=s E-AdMailBox and transfer the second E-AdMail data-stringed item to the UTP (523) of UDBS. Furthermore, the UDP (525) can re-process the second data-stringed item by inserting additional data, such as expiration date, create the final E-AdMail data item, symbolized by $Item_n$=== (a, j_1), and store the final E-AdMail data item in the E-AdMailBox for the smart card user-x. The smart card user-x can later review the E-AdMail pages by accessing any of the E-AdMail data items, i.e., from

BNSDOCID: <WO___0122325A1_I_>

E-AdMail-1 to E-AdMail-n, generated for vendor-a in the personal E-AdMailBox in UDBS (530) using browser-based online or onsite user-interface units, via the USP (521). The USP will then redirect the requests to the VSP (531), which will decipher the E-AdMail data and display the personalized E-AdMail page-based content for smart card user-x.

The same method of processes for J_1 service, which is defined as E-AdMail-based service, apply to any particular vendor-b, vendor-c or vendor-d, who can be any of the online merchants, site merchants and service providers, as shown in FIG 2A. This inventive method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The preferred service platform is implemented with yet another unique platform-service-oriented method by creating E-Coupon-based E-Commerce box, hereinafter referred as E-CouponBox, for rendering pre-order E-Lead-based e-purchasing as one of the preferred platform=s common E-Commerce services. There are two ways of creating E-Coupons, one is push-based and the other is pull-based.

The push-based:

As shown in FIG. 2B(1), the preferred method of implementing E-Lead-push-based E-CouponBox for a particular smart card user-x is illustrated. When the smart card user-x accesses any of the E-Lead-based user-interface units (470, 480, 490) and reacts to the pre-displayed E-Lead-based content, the E-

BNSDOCID: <WO__0122325A1_I_>

lead data associated with the ad, such as time/date, user/smart card ID# (U/SC ID#), will be generated and stored in the respective user-interface unit. A number of E-Lead data gathered over a period of time in each user-interface unit can then be uploaded to SDBS (510). Based on the time/date E-Lead data, SDBS, which has previously received the ad content and ad control information, will create the first E-Coupon-based item, which includes, but not limits to, U/SC ID#, E-Coupon ID#, advertiser/vendor ID#, all cascaded together as one data string. The first E-Coupon-based data item for a particular vendor-a, as symbolized by $Item_n$= (a, j_2) defined as the n^{th} database item for service j_2 from vendor-a, can then be uploaded from the in-out communication box installed in SDBS (510) to the XTP (313) of XDBS (320). The XDP (315) in XDBS can further re-process the first data-stringed item by inserting additional data, such as UDBS-IP, based on U/SC ID#, and create the second E-Coupon data item, which can be symbolized by $Item_n$== (a, j_2). The XTP can then locate the right UDBS (530) that contains the smart card user'x=s E-CouponBox and transfer the second E-Coupon data-stringed item to the UTP (523) of UDBS. Furthermore, the UDP (525) can re-process the second data-stringed item by inserting additional control data, such as expiration date, create the final E-Coupon data item, symbolized by $Item_n$=== (a, j_2), and store the final E-Coupon data item to the E-CouponBox for the smart card user-x. The smart card user-x can later review E-Coupon pages by accessing any of the E-Coupon data items, i.e., from E-Coupon-1 to E-Coupon-n, generated for vendor-a in the personal E-CouponBox in UDBS (530) using browser-based online or onsite user-interface units, via the USP (521). The USP will then redirect the requests to the

BNSDOCID: <WO__0122325A1_I_>

VSP (531), which will decipher the E-Coupon data and display the specific E-Coupon image for smart card user-x. Same processes for J_2 service, which is defined as E-Coupon-based service, apply to any particular vendor-b, vendor-c or vendor-d, who can be any of the online merchants, site merchants and service providers, as shown in FIG 2B(1).

The pull-based:

As shown in FIG. 2B(2), the preferred method of implementing E-Lead-pull-based E-CouponBox for a particular smart card user-x is illustrated. When the smart card user-x accesses any of the E-Lead-based iPOP units (490) and browses the E-Lead-based E-BranchStore list, the E-lead data associated with the selected ideal vendor name, such as vendor ID#, and user/smart card ID# (U/SC ID#), will be generated in SDBS (510). The SDBS, which has previously received the ad content and ad control information, will create the first E-Coupon-based item, which includes, but not limits to, U/SC ID#, E-Coupon ID#, advertiser/vendor ID#, all cascaded together as one data string. The first E-Coupon-based data item for a particular vendor-a, as symbolized by $Item_n$= (a, j_2) defined as the n^{th} database item for service j_2 from vendor-a, can then be uploaded from the in-out communication box installed in SDBS (510) to the XTP (313) of XDBS (320). The XDP (315) in XDBS can further re-process the first data-stringed item by inserting additional data, such as UDBS-IP, based on U/SC ID#, and create the second E-Coupon data item, which can be symbolized by $Item_n$== (a, j_2). The XTP can then locate the right UDBS (530) that contains the smart card user'x=s E-CouponBox and transfer the second E-Coupon data-stringed item

BNSDOCID: <WO___0122325A1_I_>

to the UTP (523) of UDBS. Furthermore, the UDP (525) can re-process the second data-stringed item by inserting additional control data, such as expiration date, create the final E-Coupon data item, symbolized by $Item_n$=== (a, j_2), and store the final E-Coupon data item in the E-CouponBox for the smart card user-x. The smart card user-x can later review E-Coupon pages by accessing any of the E-Coupon data items, i.e., from E-Coupon-1 to E-Coupon-n, generated for vendor-a in the personal E-CouponBox in UDBS (530) using browser-based online or onsite user-interface units, via the USP (521). The USP will then redirect the requests to the VSP (531), which will decipher the E-Coupon data and display the specific E-Coupon image for smart card user-x.

The same method of processes for J_2 service, which is defined as E-Coupon-based service, apply to any particular vendors, who can be online merchants, site merchants or service providers. This inventive method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The preferred service platform is implemented with yet another unique platform-service-oriented method by creating E-Token-based E-Commerce box, hereinafter referred as E-TokenBox for rendering the pre-order E-Coupon-loyalty-based e-purchasing as one of the preferred platform's common E-Commerce services.

As shown in FIG. 2C, the preferred method of implementing E-Coupon-based E-TokenBox for a smart card user-x is illustrated. Every time when the new items of E-CouponBox in

BNSDOCID: <WO__0122325A1_I_>

UDBS (530) for the smart card user-x is created, the UDP (525) will first check E-Coupon data item and compare them with the loyalty-site information established in the user's basic data section. Therefore, If just being created, the E-Coupon data will be delivered automatically to loyalty sites specified by the user-x.

The delivery process of the E-Coupon data is initiated by the UDP in UDBS (530). For illustration purpose, the E-Coupons offered by a particular vendor-i, i.e., the 1st E-Coupon-1 to the n^{th} E-Coupon-n_i, can be denoted as $Item_n$ (i, j_3), where 2=<i=<M+N, M is the number of onsite vendors, N is number of online vendors, 1=<M, 1=<N, and 1=<n=<n_i. Since the loyalty information is ready in the user-x=s basic data e-box, the IP of the target loyalty-based stores for each E-Coupon, as well as the IP of its proxy online server XDBS (320) can be deciphered by looking up the common Vendor-ID-to-IP table resided in UDBS. Suppose, there is only one XDBS (320) that covers all the onsite stores and m_i is the number of loyalty stores that accept vendor-i's n^{th} E-Coupon for user-x. Therefore, when $Item_n$ (i, j_3) data string is received, XDBS will re-process it by add-in more control data, such as SDBS-IP, and create multiple $Item_n$= (i, j_3), each with a different IP address ranging from the first loyalty store ($SDBS_1$-IP) to mi^{th} loyalty store ($SDBSm_i$-IP). Then XDBS will transfer the particular data Item to its correspondent loyalty E-RealStore for user-x. Each loyalty-based SDBS (510) receives $Item_n$= (i, j_3) and re-processes it by add-in more control data, such as expiration date, converting it into $Item_n$== (i, j_3) and storing it in the E-TokenBox for user-x.

BNSDOCID: <WO___0122325A1_I_>

When entering an onsite store that is not one of the loyalty stores, user-x can use the iPOP unit (490) with the personal smart card to access personal E-CouponBox and download the E-Coupon data item directly to the smart card, which is equipped with the personal E-TokenBox.

As shown in FIG. 2C, the non loyalty-based onsite stores, from the $(m_i+1)^{th}$ to the M^{th}, will not accept vendor-i's n^{th} E-Coupon for user-x. User-x can then go to any of the above non-loyalty stores and access the iPOP unit (490) with the personal smart card (500). When receiving $Item_n$ (i, j_3) via the built-in browser controlled by the iPOP unit (490), SDBS (510) will re-process it by adding-in more control data, such as expiration date, converting it into $Item_n$== (i, j_3) and storing it in the E-TokenBox of the user'x=s smart card via the iPOP unit.

The same method of processes for J_3 service, which is defined as E-Token/C-based service, apply to any particular vendors, who can be online merchants, site merchants, or service providers. This inventive method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The present invention is implemented with yet another unique platform-service-oriented method of creating E-Payment-based E-Commerce box, hereinafter referred as E-PaymentBox, for rendering interactive order-and-pay oriented e-purchasing as one of the preferred platform's common E-Commerce services.

BNSDOCID: <WO__0122325A1_I_>

As shown in FIG. 2D, the preferred method of implementing E-PaymentBox for a smart card user-x is illustrated. User-x first enters the onsite store and accesses the iACT unit (470) with the smart card to trigger the process of applying E-Tokens, so that all the E-Tokens stored in the loyalty site or stored on the smart card can be extracted out. SDBS (510) will match them against in-store merchandizes, create an E-Token temp file and further generate a paper printout showing the result of listing applicable E-Tokens with locations for all the applicable merchandise.

When finishing picking up the merchandise, user-x will go to the checkout counter, which is equipped with both a POS station for cashier to operate and an iPOS unit (480) for user-x to access by inserting the smart card, which is equipped with E-Wallet and E-Purse. E-Wallet contains all the information for membership cards, credit cards and debit cards that belong to user-x. E-Purse is a digital personal line of credit or digital cash provided by the service aggregator. The POS station and the iPOS-based SDBS can be linked on a LAN, so that they can communicate with each other. After the log in process from the user-x with the proper PIN, the iPOS unit will send the membership card information, if there is any, to the POS station, so that membership discount can be applied. The iPOS unit will be showing each merchandize or paper coupon item being scanned-in by the cashier during the order entry processing, membership processing and paper coupon processing. When it comes to E-Token processing, SDBS (510) will take over and use the previously generated E-Token temp file to match against items that are scanned-in. If matched, the discount amount will be deducted from the total amount.

BNSDOCID: <WO___0122325A1_I_>

The used and unused E-Tokens in the temp file will be re-processed by SDBS to update the user-x E-TokenBox, so that the remaining E-Tokens can be used for the next time, thus completing the E-Token processing. The discount amount of E-Token processing will be sent back to the POS station, so that the POS station will have the same dollar amount for further processes. Furthermore, since the smart card is equipped with E-Wallet and E-Purse, the iPOS unit will initiate the payment processing by showing only the store-honored payment cards, such as credit and debit cards, as well as e-Purse, for user-x to choose. The iPOS unit can complete the payment process or send the payment information back to the POS station, so that the POS station can complete the payment process.

After the completion of the onsite electronic purchasing in E-RealStore, the SDBS will generate payment-based $Item_m=(i, j_4)$ with data, such as Date/Time, and store it in the IN-OUT box for further uploading to XDBS (320). When receiving $Item_m=(i, j_4)$, XDBS will re-process it by adding in more control data, such as UDBS-IP, converting it into $Item_m==(i, j_4)$ so that it can be transferred to the right UDBS that contains the user-x=s database. Once receiving $Item_m==(i, j_4)$, UDBS will re-process it by adding in more control data, such as recording Date/Time, converting it into $Item_m===(i, j_4)$ and further storing it in the personal E-PaymentBox for user-x.

When user-x enters the onsite store, he or she can access the iPOP unit (490) directly by inserting the smart card. After proper log-in, the iPOP unit will show a service menu, which will include E-Token application process and online purchasing. User-x can first initiate the E-Token application

BNSDOCID: <WO__0122325A1_I_>

process, so that all the E-Tokens stored in the loyalty site or stored on the smart card can be extracted out, creating a temp file by SDBS (510). User-x can further initiate the online purchasing by entering into the E-BranchStore in VDBS (540) that contains the onsite vendor's online store. The VDBS will first complete the e-PO shopping cart processing, so that ordered items are listed on an electronic purchase order form. The VDBS then retrieves the membership information from the E-Wallet on the smart card and applies membership discount, if there is any. The VDBS further retrieves E-Coupons from user'x=s E-CouponBox, applies E-Coupon discount, if there is any, and sends back the updated file for UDBS to update the user'x=s E-CouponBox. The VDBS again retrieves E-Tokens from E-Token temp file, applies E-Token discount, if there is any, and sends back the updated file for SDBS to update the user'x=s E-TokenBox. The VDBS further displays only the store-honored payment cards, as well as E-Purse, so that user-x can choose the ideal one to pay for the ordered products or services. The VDBS further processes the payment, shipping and taxes on the electronic order form, and completes the online purchasing.

After the completion of the online purchasing in E-BranchStore, the VDBS will generate payment-based $Item_n=(i, j_4)$ with data, such as Date/Time, and transfer it to the right UDBS (530) that contains the user'x=s database. Once receiving $Item_n=(i, j_4)$, the UDBS will re-process it by adding in more control data, such as recording Date/Time, converting it into $Item_m===(i, j_4)$ and further storing it in the personal E-PaymentBox for user-x.

3NSDOCID: <WO___0122325A1_I_>

The same method of processes for J_4 service, which is defined as E-Payment-based service, apply to any particular vendors, who can be online merchants, site merchants, or service providers. This inventive method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The present invention is implemented with yet another unique platform-service-oriented method of creating E-Prize-based E-Commerce box, hereinafter referred as E-PrizeBox, for rendering after-order reward-oriented e-purchasing as one of the preferred platform's common E-Commerce services.

As shown in FIG. 2E, the preferred method of implementing E-PrizeBox for a smart card user-x is illustrated. Whenever user-x finishes the onsite electronic purchasing in E-RealStore, as illustrated above, the SDBS (510) will generate E-Prize-based $Item_m=(i, j_5)$ with data, such as Date/Time, and store it in the IN-OUT box for further uploading to XDBS (320). When receiving $Item_m=(i, j_5)$, XDBS will re-process it by adding in more control data, such as UDBS-IP, converting it into $Item_m==(i, j_5)$ so that it can be transferred to the right UDBS that contains the user-x's database. Once receiving $Item_m==(i, j_5)$, the UDBS will re-process it by adding in more control data, such as recording Date/Time, converting it into $Item_m===(i, j_5)$ and further storing it in the personal E-PrizeBox for user-x.

BNSDOCID: <WO___0122325A1_I_>

In addition, whenever user-x finishes the online electronic purchasing in E-BranchStore, as illustrated above, the VDBS (540) will generate E-Prize-based $Item_n=(i, j_5)$ with data, such as Date/Time, and transfer it to the right UDBS (530) that contains the user-x's database. Once receiving $Item_n=(i, j_5)$, the UDBS will re-process it by adding in more control data, such as recording Date/Time, converting it into $Item_n===(i, j_5)$ and further storing it in the personal E-PrizeBox for user-x.

The same method of processes for J_5 service, which is defined as E-Prize-based service, apply to any particular vendors, who can be online merchants, site merchants, or service providers. This inventive method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The present invention is implemented with yet another unique platform-service-oriented method of creating E-Ticket-based E-Commerce box, hereinafter referred as E-TicketBox, for rendering after-order paid-voucher-oriented e-purchasing as one of the preferred platform's common E-Commerce services.

As shown in FIG. 2F, the preferred method of implementing E-TicketBox for a smart card user-x is illustrated. Whenever finishing the onsite and online electronic purchasing, as illustrated above, user-x has an option of receiving a paid voucher instead of receiving the products and the services. These paid vouchers, which can later be processed as E-Coupons, are defined as E-Tickets. They are transferable, allowing user-x to use for the self-purpose or to give it to others electronically as gifts.

BNSDOCID: <WO___0122325A1_I_>

Whenever user-x finishes the onsite electronic purchasing in E-RealStore and elects to use the available E-Ticket service, the SDBS (510) will generate E-Ticket-based $Item_m=(i, j_6)$ with data, such as Date/Time, and store it in the IN-OUT box for further uploading to XDBS (320). When receiving $Item_m=(i, j_6)$, the XDBS will re-process it by adding in more control data, such as UDBS-IP, converting it into $Item_m==(i, j_6)$ so that it can be transferred to the right UDBS that contains the user-x's database. Once receiving $Item_m==(i, j_6)$, the UDBS will re-process it by adding in more control data, such as recording Date/Time, converting it into $Item_m===(i, j_6)$ and further storing it in the personal E-TicketBox for user-x.

In addition, whenever user-x finishes the online electronic purchasing in E-BranchStore and elects to use the available E-Ticket service, the VDBS (540) will generate E-Ticket-based $Item_n=(i, j_6)$ with data, such as Date/Time, and transfer it to the right UDBS (530) that contains the user-x's database. Once receiving $Item_n=(i, j_6)$, the UDBS will re-process it by adding in more control data, such as recording Date/Time, converting it into $Item_n===(i, j_6)$ and further storing it in the personal E-TicketBox for user-x.

The same method of processes for J_6 service, which is defined as E-Ticket-based service, apply to any particular vendors, who can be online merchants, site merchants or service providers. This inventive method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

BNSDOCID: <WO___0122325A1_I_>

The present invention is implemented with yet another unique platform-service-oriented method of implementing additional E-Commerce services by using one of more of the aforementioned platform's common E-Commerce boxes, as well as by generating individual E-Commerce boxes for additional E-Commerce services.

As shown in FIG 2G, the preferred method of incorporating additional E-Commerce services into the service platform is illustrated. This particular method is able to extend E-Prize service by converting any user's E-Prize into E-Token/P and storing it into the already-defined personal E-TokenBox. The E-Token/P-contained E-TokenBox can further be used to accommodate the E-Token-based E-Payment processes, as illustrated before.

Every time when the new items of E-PrizeBox in UDBS (530) for the smart card user-x is created, the UDP (525) will check E-Prize data item, which can be either pre-assigned with the designated onsite store or non-pre-assigned. If pre-assigned, the E-Prize data will be delivered automatically to the designated onsite store for user-x. If non-pre-assigned, user-x can specify the destination onsite store by accessing the personal E-PrizeBox via any of the online or onsite user-interface units, so that the E-Prize data can be delivered to the designated onsite store for user-x.

The delivery process of the E-Prize data to the designated onsite store is handled by the UDP in UDBS (530). For illustration purpose, the E-Prizes offered by a particular vendor-i, i.e., the 1st first E-Prize-1 to the n^{th} E-Prize-n_i,

BNSDOCID: <WO__0122325A1_I_>

can be denoted as $Item_n$ (i, j_7), where 2=<i=<M+N, M is the number of onsite vendors, N is number of online vendors, 1=<M, 1=<N, and 1=<n=<n_1. The IP of the target designated onsite store for each E-Prize, as well as the IP of its proxy online server XDBS (320) can be deciphered by looking up the common Vendor-ID-to-IP table resided in UDBS. Therefore, when $Item_n$ (i, j_7) data string is received, the XDBS will re-process it by add-in more control data, such as SDBS-IP, and create only one $Item_n$= (i, j_7). Then XDBS will transfer the particular data Item to its correspondent designated E-RealStore in SDBS (510) for user-x. The designated SDBS receives $Item_n$= (i, j_7) and re-processes it by add-in more control data, such as effective date, converting it into $Item_n$== (i, j_7) and storing it in the E-TokenBox for user-x. Once a particular E-Prize is delivered, the E-Prize in the E-PrizeBox will be marked as Adelivered@, so that it can not be re-delivered again.

For not-yet-delivered E-Prizes, user-x can use the iPOP unit (490) in any of the onsite stores by inserting the personal smart card to access the personal E-PrizeBox and download the E-Prize data item directly to the personal smart card, which is equipped with the personal E-TokenBox.

As shown in FIG. 2G, user-x can then go to any of the onsite stores, from the 1st to the Mth, and access the iPOP unit (490) with the personal smart card (500). When receiving $Item_n$ (i, j_7) via the built-in browser controlled by the iPOP unit (490), the SDBS (510) will re-process it by adding-in more control data, such as effective date, converting it into $Item_n$== (i, j_7) and storing it in the E-TokenBox of the user-x's smart card.

BNSDOCID: <WO_ 0122325A1_I_>

The same method of processes for J_7 service, which is defined as E-Token/P-based service, apply to any particular vendors, who can be online merchants, site merchants or service providers. This inventive method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

As shown in FIG 2H, the preferred method of incorporating additional E-Commerce services into the service platform is illustrated. This particular method is able to extend E-Ticket service by converting any user's E-Ticket into E-Token/P and storing it into the already-defined personal E-TokenBox. The E-Token/P-contained E-TokenBox can further be used to accommodate the E-Token-based E-Payment processes, as illustrated before.

Every time when the new items of E-TicketBox in UDBS (530) for the smart card user-x is created, the UDP (525) will check E-Ticket data item, which can be either pre-assigned with the designated onsite store or non-pre-assigned. If pre-assigned, the E-Ticket data will be delivered automatically to the designated onsite store for user-x. If non-pre-assigned, user-x can specify the designated onsite store by accessing the personal E-TicketBox via any of the online or onsite user-interface units, so that the E-Ticket data can be delivered to the designated onsite store for user-x.

The delivery process of the E-Ticket data to the designated onsite store is handled by the UDP in UDBS (530). For illustration purpose, the E-Tickets offered by a particular vendor-i, i.e., the 1^{st} E-Ticket-1 to the n^{th} E-Ticket-n_i, can

3NSDOCID: <WO___0122325A1_I_>

be denoted as $Item_n$ (i, j_8), where 2=<i=<M+N, M is the number of onsite vendors, N is number of online vendors, 1=<M, 1=<N, and 1=<n=<n_1. The IP of the target designated onsite store for each E-Ticket, as well as the IP of its proxy online server XDBS (320) can be deciphered by looking up the common Vendor-ID-to-IP table resided in UDBS. Therefore, when $Item_n$ (i, j_8) data string is received, the XDBS will re-process it by add-in more control data, such as SDBS-IP, and create only one $Item_n$= (i, j_8). Then XDBS will transfer the particular data Item to its correspondent designated E-RealStore in SDBS (510) for user-x. The designated SDBS receives $Item_n$= (i, j_8) and re-processes it by add-in more control data, such as effective date, converting it into $Item_n$== (i, j_8) and storing it in the E-TokenBox for user-x. Once a particular E-Ticket is delivered, the E-Ticket in the E-TicketBox will be marked as delivered, so that it can not be re-delivered.

For not-yet-delivered E-Tickets, user-x can use the iPOP unit (490) in any of the onsite stores by inserting the personal smart card to access the personal E-TicketBox and download the E-Ticket data item directly to the personal smart card, which is equipped with the personal E-TokenBox.

As shown in FIG. 2G, user-x can then go to any of the onsite stores, from the 1st to the M^{th}, and access the iPOP unit (490) with the personal smart card (500). When receiving $Item_n$ (i, j_8) via the built-in browser controlled by the iPOP unit (490), the SDBS (510) will re-process it by adding-in more control data, such as effective date, converting it into $Item_n$== (i, j_8) and storing it in the E-TokenBox of the user-x's smart card.

BNSDOCID: <WO__0122325A1_I_>

For not-yet-delivered E-Tickets, user-x can also specify the designated E-TicketBox of user-y by accessing the personal E-TicketBox via any of the online or onsite user-interface units, so that the E-Ticket data can be delivered to the designated E-TicketBox of user-y. After receiving the E-Ticket from user-x, user-y can proceed with E-Ticket services, as illustrated above.

The same method of processes for J_8 service, which is defined as E-Token/T-based service, apply to any particular vendors, who can be online merchants, site merchants or service providers. This inventive method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

As shown in FIG 2I, the preferred method of incorporating additional E-Commerce services into the service platform is illustrated. This particular method is able to create user-x's E-Points from E-PaymentBox and convert them into E-Prizes, which can further be converted into E-Tokens/P and used with the E-Token-based E-Payment processes, as previously illustrated.

Within a fixed period of time, E-Payments in the E-PaymentBox in UDBS (530) for the smart card user-x can be tabulated so that E-Points from various vendors can be offered. The process of the E-Point is handled by the UDP (525) in UDBS (530). For illustration purpose, the E-Payments due to a particular vendor-a, i.e., the 1st E-Payment-1 to the m^{th} E-Payment-m_a, can be denoted as $Item_m$ (a, j_9), where $2=<a=<M+N$, M is the number of onsite vendors, N is number of

online vendors, 1=<M, 1=<N, and 1=<m=<m_a. Similarly, the E-Payments due to a particular vendor-b, i.e., the 1st E-Payment-1 to the n^{th} E-Payment-n_b, can be denoted as $Item_n$ (b, j_9), where 2=<b=<M+N, M is the number of onsite vendors, N is number of online vendors, 1=<M, 1=<N, and 1=<n=<n_b. The UDBS first initiates to convert $Item_m$ (a, j_9) into $Item_m$= (a, j_9) by adding in more control data, such as E-Point value, which can be arrived by looking up the point-to-dollar amount table and a multiplier specified by the vendor. After the conversion, the UDBS will add the each arrived value for each E-Payment to the current E-Point value already stored in the E-PointBox for user-x. Similar processes are made for all the other vendors, whose E-Payments can also generate E-Point values that can be further added to the E-Point value already stored in the E-PointBox of user-x. Therefore, E-PointBox of user-x in the UDBS is created to accommodate all the E-Points from various vendors, with whom user-x has made purchases.

The user-x can further access a particular vendor's E-BranchStore in VDBS (540), which offers E-Point conversion table, so that E-Points earned from that particular vendor can be converted into E-Prizes, which are offered by that particular vendor. As shown in FIG. 2I, various E-Prizes for user-x can be generated in that particular vendor's E-BranchStore and transferred to the user-x's existing E-PrizeBox in UDBS (530).

Additional E-Commerce services can be incorporated onto the preferred platform, by creating additional E-Commerce boxes, together with using E-Token box-based and E-Payment box-based services. For examples, smart card-based services that can be

BNSDOCID: <WO__0122325A1_I_>

implemented by using E-TokenBox, E-PaymentBox, etc. Personal on-demand entertainment can be implemented by using E-PointBox, E-PrizeBox, etc. Business to business E-Commerce services can be established by creating digital certificate-based E-PKIBox, together with E-PaymentBox. Broadband Infrastructure services that can be established by using the E-PaymentBox.

Basically, the above mentioned common E-Commerce box-based services, i.e., E-Coupons, E-Tokens, E-Tickets, and E-Prizes and E-Points are pre-defined intermediary E-Currencies, whose behavior on the preferred service platform is based upon a set of pre-defined rules. Different set of behavior rules can create different intermediary E-Currency services on the preferred platform.

As shown in FIG 2J, one of the preferred methods of implementing behavior-defined intermediary E-Currencies, based on inventive E-Commerce services from J2 to J9, is illustrated. The preferred method dictates how they are created and transacted, which includes, but not limits to, transferred, duplicated, updated, converted, redeemed, revoked and deleted, on the preferred service platform. Furthermore, these pre-defined intermediary electronic currencies for a particular user are stored inside the personal E-Commerce boxes respectively, which can be accessed via any of online or onsite user-interface units by that particular user.

The present invention is implemented with yet another unique platform-link-oriented method by employing an web browser apparatus, hereinafter referred as UP (700), which can be

NSDOCID: <WO___0122325A1_I_>

incorporated into online user-interface units, such as PCs and digital STB-based TVs in the homes and offices, to communicate with the inventive system's server-based apparatus. Users can use the UP-based online user-interface units to access and manage the preferred platform's E-Commerce services.

The UP is comprised of three (3) major components: 1) the HTTP-based browser with plug-ins or Active-X controls if using Microsoft Internet Explorer, which manages page-based and control-based data communication with online web servers, 2) the FTP-based client handler, which manages data file transfer to and from online web servers, 3) the optional proprietary socket-based client/server handler, which manages secured real time data communication to and from online web servers.

Therefore, there are three (3) physical storage areas in the online user-interface unit for these three communication ports, altogether hereinafter referred as E-CommBox/U, should be created and controlled by UP, so that all the incoming and outgoing control-based data or data files can be stored for subsequent operations. Since the UP's main function is to allow users to manage and access the E-Commerce box-based services, a subset of personal E-Commerce boxes can be created inside the E-CommBox/U for enabling extended services. Such services are, for examples, E-Commerce boxes' content viewing even off-line, as well as transactions with homogeneous service platforms built by inventive systems. The UP also is equipped with the form filling capability, so that user basic data can be established in UDBS that contains users' database.

BNSDOCID: <WO__0122325A1_I_>

The present invention is implemented with yet another unique platform-link-oriented method by employing a software apparatus, hereinafter referred as VP (800), which can be incorporated into the vendors' online or onsite servers, to communicate with UP-based online user-interface units, as well as inventive system's server-based apparatuses. Users can use the UP to extend preferred platform's E-Commerce box-based services into VP-based vendors' online or onsite servers.

The VP (800), which can be either a standalone program with published APIs, or a plug-in that can interface with the vendors' existing online and onsite server programs, which should handle similar to inventive system's SP-based, TP-based and DP-based functions. The VP is able to establish data communications via proprietary socket-based link with the user's UP and the inventive system's server-based apparatuses, such as UDBS and VDBS. Therefore, a physical storage in the vendor's server, hereinafter referred as E-CommBox/V, should be created and controlled by VP, so that all the incoming and outgoing control-based data or data files can be stored for subsequent operations. Users can use the UP equipped with a subset of personal E-Commerce boxes stored inside the E-CommBox/U to access vendors' online or onsite servers, using the E-CommBox/V as the working and storage area for carrying out the preferred platform E-Commerce box-based services.

As shown in FIG. 3, a preferred platform-link-oriented method of implementing E-CommBox-based UP in users' PCs and TVs with set-top-boxes and a preferred method of implementing E-CommBox-based VP in vendors' online and onsite servers are illustrated. Vendor's online and onsite servers, which may

INSDOCID: <WO___0122325A1_I_>

include online and onsite servers built by homogeneous inventive systems or built by using heterogeneous systems, can all be linked together via Internet.

Furthermore, the extending of the preferred platform services into VP-based vendors' servers via UP-based online user-interface units is illustrated. The UP first connects to the SP in UDBS (530) via HTTP for retrieving user's basic data, which contain also the IP of the UDBS that keeps the user's database, and stores them in the E-CommBox/U. The UP further browses the SP in E-BranchStore in the VDBS (540), which can subsequently redirect the browsing to the VP-based SP in the vendor's online or onsite server or the UP can browse directly to a VP(800)-based SP in a vendor's server. Once the UP link to the VP is established, the user basic data are also transferred to the E-CommBox/V. When the UP accesses a form-based page in the E-Store, the SP in the vendors' server generates the page content from the DP in the server and the E-CommBox/V, based on the E-Store service. The SP in the vendor's server interfaces with the VP, so that user's basic data in the E-CommBox/V can be used to fill the service form. If there is extra data, which are not available in the current E-CommBox/V, the SP in the vendor's server will notify the VP, which further communicates directly with the DP in UDBS that contains the user's database, via the proprietary socket with the right IP. Once the needed data is retrieved into the E-CommBox/V, the VP will notify the SP in the vendor's server, so that it can finish creating the page and send it to the UP via the HTTP port. Once the UP is finished with the browsing, the UP will generate transaction-related data in the E-CommBox/U. The VP in the vendor's server will also send the transaction-

BNSDOCID: <WO___0122325A1_I_>

related information in the E-CommBox/V back to UDBS via the proprietary socket, so that transaction integrity can be double checked and assured, if needed. Subsequent transactions can then further be generated by UDBS and sent to the TDBS.

The present invention is implemented with yet another unique interactive advertising-based method by employing an E-Lead-based form-based software apparatus, hereinafter referred as AP (850), which can be incorporated in vendors' VP-based online and onsite servers, to install E-Lead data into the server's browser-based banner ads. The AP, which can be a form-based program that can interface with the DP in the vendor's server and set up the database content for the SP in the vendor's server to generate HTML-page GIF-based banner ads with E-Lead data. The E-Lead data can be in an Active-X control-based tag format, which can be downloaded to the UP during browsing. The E-Lead-based built-in ActiveX control is already evoked by the UP and resided in the memory. During the HTML processing by the UP, the E-Lead tag will be processed, which allows the E-Lead-based Active-X control to be included and the page will be able to be created and displayed. When the user clicks on the banner ad, the Active-X control will take over and prompt out a dialog box, so that the user can choose to link directly to the advertiser's URL page, in addition to E-Lead processing. Since E-Lead data contain, but not limit to, URL, Vendor ID, Ad #, E-coupon #, the browsing will be linked to the advertiser's URL accordingly. After the browsing is finished, the E-Lead data will also be stored in the E-CommBox/U by the UP for later upload to trigger subsequent E-Commerce services

NSDOCID: <WO___0122325A1_I_>

specified by the advertiser. Moreover, the vendors' banner ad-based web-sites or E-Stores in a more general term, can be upgraded into E-Lead-embedded E-Stores by implementing the AP.

As shown in FIG. 3A, the preferred method of implementing E-Lead-based Banner Ads for triggering E-AdMail service for user-x is illustrated. User-x first uses UP (700) to browse the AP-based (850) banner ads on VP-based (800) vendors' online or onsite servers, generating E-Lead data, which contain, but not limit to, the watermark, URL, vendor ID# and Ad ID#, and can be stored in E-CommBox of user-x's PC or TV-based set-top-box. For illustration purpose, the E-Lead data, generated by user-x for a particular vendor-a's banner ads, i.e., the 1st E-Lead-1 to the m^{th} E-Lead-m_a, can be denoted as $Item_m$ (a, j_{10}), where 2=<a=<M+N, M is the number of onsite vendors, N is number of online vendors, 1=<M, 1=<N, and 1=<m=<m_a. Similarly, the E-Lead data, generated by user-x for a particular vendor-b's banner ads, i.e., the 1st E-Lead-1 to the n^{th} E-Lead-n_b, can be denoted as $Item_n$ (b, j_{10}), where 2=<b=<M+N, M is the number of onsite vendors, N is number of online vendors, 1=<M, 1=<N, and 1=<n=<n_b.

In subsequent browsing, the UP will upload $Item_m$ (a, j_{10}) to the right UDBS (530) that contains the user-x's database. When $Item_m$ (a, j_{10}) data string is received, the UDBS will re-process it by add-in more control data, such as expiration Date, and create $Item_m$= (a, j_{10}) and store it into the E-AdMailBox of user-x.

The same method of processes for J_{10} service, which is defined as E-Lead-based E-AdMail service, apply to any particular vendors, who can be online merchants, site merchants or service providers. This inventive method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

As shown in FIG. 3B, the preferred method of implementing E-Lead-based Banner Ads for triggering E-Coupon service for user-x is illustrated. User-x first uses UP (700) to browse the AP-based (850) banner ads on VP-based (800) vendors' online or onsite servers, generating E-Lead data, which contain, but not limit to, the watermark, URL, vendor ID# and E-Coupon ID#, and can be stored in E-CommBox of user-x's PC or TV-based set-top-box. For illustration purpose, the E-Lead data, generated by user-x for a particular vendor-a's banner ads, i.e., the 1st E-Lead-1 to the m^{th} E-Lead-m_a, can be denoted as $Item_m$ (a, j_{11}), where $2=<a=<M+N$, M is the number of onsite vendors, N is number of online vendors, $1=<M$, $1=<N$, and $1=<m=<m_a$. Similarly, the E-Lead data, generated by user-x for a particular vendor-b's banner ads, i.e., the 1st E-Lead-1 to the n^{th} E-Lead-n_b, can be denoted as $Item_n$ (b, j_{11}), where $2=<b=<M+N$, M is the number of onsite vendors, N is number of online vendors, $1=<M$, $1=<N$, and $1=<n=<n_b$.

In subsequent browsing, the UP will upload $Item_m$ (a, j_{11}) to the right UDBS (530) that contains the user-x's database. When $Item_m$ (a, j_{11}) data string is received, the UDBS will re-process it by add-in more control data, such as expiration Date, and create $Item_m$= (a, j_{11}) and store it into the E-CouponBox of user-x.

NSDOCID: <WO___0122325A1_I_>

The same method of processes for J_{11} service, which is defined as E-Lead-based E-Coupon service, apply to any particular vendors, who can be online merchants, site merchants or service providers. This inventive method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

The present invention is implemented with yet another unique interactive advertising-based method by employing an E-Lead-based remote control module, which can be incorporated into the TV set, to activate the preferred platform's E-Commerce services from TV commercials.

As shown in FIG. 4, the preferred method of implementing an E-Lead-based remote control module is illustrated. The remote control module has two units: (1) the handheld unit (600) and (2) the base unit (650). There are at least 3 Interest buttons on the handheld unit (600), the current-AD-0, the AD-1 (AD minus 1), which means first previous ad and the AD-2 (AD minus 2), which means the second previous ad. These buttons, which allow users/viewers to click when the interested TV commercial is or has been previously displayed on the TV. When TV viewers/users interact with a particular TV commercial using the handheld unit (600), E-Lead data associated with that TV commercial can be generated and stored in the built-in E-CommBox of the remote control base unit (650).

TV commercials can be E-Lead enabled, so that they can display the service icon together with the ad. The user/viewer first sees the icon and then clicks the interest button. Furthermore, if that particular TV commercial is

BNSDOCID: <WO__0122325A1_I_>

equipped with the pre-loaded information, which has been downloaded to the base unit from the inventive system, then the description of the service icon can be displayed on the handheld unit. If there is no service icon or any pre-loaded information, the click on the interest button still will trigger subsequent actions for the advertiser to respond, such as sending e-mails or sending direct mailing.

The TV-commercial-based E-Lead data can be automatically uploaded to the modem server installed within the inventive system via the built-in phone modem equipped in the base unit (650). The modem server further transfers E-Lead data to the inventive system's server-based apparatus for subsequent E-Commerce services specified by the advertisers. Or, E-Lead data stored in the E-CommBox of the base unit can be uploaded using either wired or wireless link to the UP-based (700) PCs or TV set-top-boxes, which later can connect to the inventive system's server-based apparatus for subsequent commingled E-Commerce services specified by the advertisers.

As shown in FIG. 4A, the preferred method of implementing E-Lead-based remote control to allow TV commercials to trigger E-AdMail service for user-x is illustrated. User-x first uses remote control hand held unit to click the desired Interest buttons, when the interested TV commercial is or has been previously displayed on the TV. Once the click is made, the handheld unit will generate E-Lead data, which contain, but not limit to, Channel #, User ID# and Time/Date, and can be stored in the E-CommBox of the base unit (650). For illustration purpose, the E-Lead data, generated by user-x for a particular vendor-a's TV commercial, i.e., the 1st E-Lead-1

3NSDOCID: <WO___0122325A1_I_>

to the m^{th} E-Lead-m_a, can be denoted as $Item_m$ (a, j_{12}), where 2=<a=<M+N, M is the number of onsite vendors, N is number of online vendors, 1=<M, 1=<N, and 1=<m=<m_a. Similarly, the E-Lead data, generated by user-x for a particular vendor-b's banner ads, i.e., the 1^{st} E-Lead-1 to the n^{th} E-Lead-n_b, can be denoted as $Item_n$ (b, j_{12}), where 2=<b=<M+N, M is the number of onsite vendors, N is number of online vendors, 1=<M, 1=<N, and 1=<n=<n_b.

The modem in the base unit will upload $Item_m$ (a, j_{12}) to the ADBS (410), which keeps all the advertisers' advertising records and the conversion table of Time/Date/Channel # vs advertiser/vendor's ID, ad # and E-Coupon #. When receiving the $Item_m$ (a, j_{12}), the ADBS will re-process it by adding in more control data, such as Ad #, convert it into $Item_m$= (a, j_{12}), and transfer it the right UDBS (530) that contains user-x's database. When $Item_m$= (a, j_{12}) data string is received, the UDBS will re-process it by add-in more control data, such as expiration Date, and create $Item_m$== (a, j_{12}) and store it into the E-AdMailBox of user-x.

The same method of processes for J_{12} service, which is defined as E-Lead-based TV commercial E-AdMail service, apply to any particular vendors, who can be online merchants, site merchants or service providers. This inventive method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

As shown in FIG. 4B, the preferred method of implementing E-Lead-based remote control to allow TV commercials to trigger E-Coupon service for user-x is illustrated. User-x first uses

BNSDOCID: <WO___0122325A1_I_>

remote control hand held unit to point and click on the Interest button, when the interested TV commercial is displayed on the TV. Once the click is made, the handheld unit will generate E-Lead data, which contain, but not limit to, Channel #, User ID# and Time/Date, and can be stored in the E-CommBox of the base unit. For illustration purpose, the E-Lead data, generated by user-x for a particular vendor-a's TV commercial, i.e., the 1st E-Lead-1 to the m^{th} E-Lead-m_a, can be denoted as $Item_m$ (a, j_{13}), where 2=<a=<M+N, M is the number of onsite vendors, N is number of online vendors, 1=<M, 1=<N, and 1=<m=<m_a. Similarly, the E-Lead data, generated by user-x for a particular vendor-b's banner ads, i.e., the 1st E-Lead-1 to the n^{th} E-Lead-n_b, can be denoted as $Item_n$ (b, j_{13}), where 2=<b=<M+N, M is the number of onsite vendors, N is number of online vendors, 1=<M, 1=<N, and 1=<n=<n_b.

The modem in the base unit will upload $Item_m$ (a, j_{13}) to the ADBS (410), which keeps all the advertisers' advertising records and the conversion table of Time/Date/Channel # vs advertiser/vendor's ID, ad # and E-Coupon #. When receiving the $Item_m$ (a, j_{13}), the ADBS will re-process it by adding in more control data, such as E-Coupon #, convert it into $Item_m$= (a, j_{13}), and transfer it the right UDBS (530) that contains user-x's database. When $Item_m$= (a, j_{13}) data string is received, the UDBS will re-process it by add-in more control data, such as expiration Date, and create $Item_m$== (a, j_{13}) and store it into the E-CouponBox of user-x.

The same method of processes for J_{13} service, which is defined as E-Lead-based TV commercial E-Coupon service, apply to any particular vendors, who can be online merchants, site

ANSDOCID <WO 0122325A1 I >

merchants or service providers. This inventive method can also be implemented independently based on a stand-alone infrastructure, which can be a subset of the inventive system.

As shown in FIG. 5A, a community-based integration, which includes one inventive system, a plurality of external linked online and onsite servers, and a plurality of online user-interface units, such as PCs and TVs with set-to-boxes, is illustrated. This integration is ideal implementation in a community, where community users will be included in the UDBS and community stores will be installed with the SDBS-based solutions and are included in the VDBS.

As shown in FIG. 5B, an overall integration, which includes a plurality of inventive systems, a plurality of external linked online and onsite servers, and a plurality of online user-interface units, such as PCs and TVs with set-to-boxes is illustrated. The overall integration shows a plurality of community-based inventive systems can be linked together via Extranet using VPN. The overall integration enables the local user, staying in the other community, to access the personal E-Commerce boxes via Internet, to download the transactional items onto the personal smart card for onsite usage, and to complete the E-Commerce box-based services online or onsite.

The inventive apparatus included in the inventive system can be classified as follows:

1. Online Server-based apparatus: online servers XDBS (320), TDBS (350), ADBS (400-430), PDBS (450-460), UDBS (530), VDBS (540)

BNSDOCID: <WO__0122325A1_I_>

2. Onsite server-based and device-based apparatus: SDBS (510) with iACT (470), iPOS (480), iPOP (490) onsite user-interface units.

3. Online device-based apparatus: a remote control module with handheld unit (600) and base unit (650).

4. Online application software-based apparatus: UP (700) for online user-interface units, and VP (800) and AP (850) for online and onsite heterogeneous servers.

The implementation of the preferred embodiment of the present invention involves four procedures:

I) the preferred hardware implementation of all inventive server-based and device-based apparatus from 320 to 650.

II) the preferred overall hardware configuration of the present inventive system incorporated with inventive and non-inventive apparatus.

III) the preferred server configuration and inter-server data flows of all the preferred-hardware-implemented server-based apparatus.

IV) the preferred application-based software implementation of the inventive E-Commerce services from J1 to J13.

HARDWARE IMPLEMENTATIONS

1. The hardware for online server-based apparatus:

In a small service environment, one web-based server can be equipped with multiple concurrent programs, such as SP, DP and TP as defined above. However, in a larger service environment

3NSDOCID: <WO___0122325A1_I_>

where a lot of incoming traffic is expected, a single computer-based server simply can not accommodate. Therefore, more powerful computers with multiple processors are needed to handle all the incoming requests from either browser-based online user-interface units or other intranet-linked servers. Furthermore, these servers should be equipped with fail-over capabilities, so that online E-Commerce services can be rendered without disruption.

(The preferred hardware implementation of server-based apparatuses using workgroup server arrays, XDBS-XWGS, ADBS-AWGS, SDBS-SWGS)

The inventive system employs workgroup server arrays, (described in provisional application number 60/135,318), as the preferred building block, so that online server-based apparatus can be built to be highly available and scaleable, and can accommodate mission-critical smart-card-based applications for more users and vendors concurrently.

As described in the provisional application, the workgroup server array can be configuration based on workgroup components, such TeamProcessors, TeamChassis, TeamServers and TeamPanels. The workgroup server array is equipped with built-in functions, which include, but not limit to, workgroup coordination and supervisory services, workgroup internal, onsite/remote monitoring and management, workgroup device sharing, workgroup fail-over scheme and fail-over software, workgroup load balancing services, workgroup file and database services, workgroup security and workgroup scalability.

BNSDOCID: <WO__0122325A1_I_>

As shown by FIG. 6A, the present invention employs an 8-TeamProcessor-based workgroup server array as the preferred building block. It is configured to include 8 TeamProcessors, 4 TeamServers and 2 TeamPanels, housed in 2 TeamChassis, which further can be all enclosed in one rack-mount type of storage unit. Four (4) TeamProcessors, TP1 to TP4, can be assigned for SP-based applications, two (2) TeamProcessors, TP5 to TP6, can be assigned for DP-based and TP-based database and file transfer applications, and the last two (2) TeamProcessors, TP7 to TP8, can be assigned as backup servers for TP5 and TP6.

The workgroup server array is equipped with four (4) direct-access SCSI-based Disk/RAM-disk TeamServers, each being divided into two partitions. TP1 and TP2 share the first TeamServer, each having the absolute privilege of its captive partition. For non-captive partition, only the read privilege is allowed. By the same scenario, TP3 and TP4 share the second one, TP5 and TP6 share the third one, and TP7 and TP8 share the fourth one. In so doing, the fail-over capability among workgroup-based servers is established. Since online web application services are specific and well-defined, TeamServers will be ideal to provide better performance than other network-enabled conventional servers.

The 8-TeamProcessor-based workgroup server array is also equipped with 2 Cascaded TeamPanels, the main TeamPanel is controlled by TP8, which is also the TeamManager that can monitor and supervise the workgroup activities. The TeamManager can re-boot any workgroup-based servers, and dispatch incoming traffic among workgroup-based servers. In

3NSDOCID: <WO___0122325A1_I_>

addition, TP8 and TP6 are mirrored fail-over servers, therefore, if TP8 should fail, TP6 will take over to control the main TeamPanel.

If the incoming traffic is too heavy for one workgroup server array to handle, the second workgroup server array can be cascaded. Since smart card-based E-Commerce box-based services are basically loyalty-based services, database in each workgroup server array is different, so that each workgroup server array handles a unique group of smart card users that are different from others. Therefore, a plurality of the same application-based workgroup server arrays can be formed as a workgroup server cluster, enabling highly availability and scalability of the E-Commerce services. Since each workgroup server array is QoS (Quality of Service) guaranteed, the overall workgroup server cluster is also QoS guaranteed.

All the online server-based apparatuses, such as XDBS (320), TDBS (350), ADBS (400-430), PDBS (450-460), UDBS (530), VDBS (540), can all be implemented with workgroup server arrays, converting them into XWGS, TWGS, AWGS, PWGS, UWGS and VWGS respectively. Further they can be grown to include a plurality of the same-functioned workgroup server arrays, i.e., workgroup server clusters, converting further into XWGC, TWGC, AWGC, PWGC, UWGC and VWGC.

Therefore, a preferred embodiment of present invention comprises workgroup server arrays and workgroup server clusters to implement online server-based apparatus, so that highly available, scalable, mission critical online E-Commerce services via online user-interface units can be accommodated.

BNSDOCID: <WO___0122325A1_I_>

2. The hardware implementation of onsite server and user-interface units:

A preferred form of an onsite commercial system should provide user-centric electronic purchasing-based E-Commerce services for onsite customers via a plurality of onsite user-interface units, i.e., commercial PDAs, to facilitate business operation using transaction-oriented cards.

The present invention employs a workgroup-server-array-based commercial PDA system, (described in provisional application number 60/135,318), as the preferred onsite commercial system, so that highly available, scalable and mission critical smart card-based onsite E-Commerce services via onsite commercial PDAs can be accommodated for a plurality of users concurrently.

The preferred commercial PDA system can accommodate transaction-oriented cards, either magnetic stripe cards or chip-based smart cards, providing them an interactive multimedia-capable service platform, on which a variety of user-centric electronic purchasing services can be rendered via various commercial PDAs equipped with the card read/write mechanism.

As shown in FIG 6B, a 2-TeamProcessor-based workgroup server array with attached commercial PDAs is illustrated. It is built based on Amulti-link multimedia network-based system architecture@ (as described in Application HTR11), which includes not only the common internal network link, but, most importantly, the common video-delivery link and the individual

user-interactivity link. It is comprised of 2 TeamProcessors, 1 SCSI-disk-based TeamServers and 1 TeamPanel, all housed in one TeamChassis. In addition, multi-link based apparatuses, such as a modulator box and a cable distribution box, as well as 8 serial-port-based onsite commercial PDA units, i.e., 2 iPOS, 2 iPOP and 4 iACT units, as defined before, are also included. The TeamProcessor is equipped with 2 VGA display cards for two VGA/LCD displays, so that one VGA/LCD display is assigned for an iPOS unit, and the other VGA/LCD display is assigned for an iPOP unit.

As shown in FIG. 6C, a preferred embodiment of each commercial PDA is illustrated. The iPOS and iPOP units are comprised of a micro-controller-based set-top-box, which is also equipped with serial-based links to communicate with serial-port-based peripheral devices, such as a smart card reader, a thermo-printer, and a touch-screen for LCD/VGA display, as well as keyboard port to communicate with keyboard. The iACT unit is comprised also of a micro-controller-based board, which is equipped with serial-based links to communicate with serial-port-based peripheral devices, such as a thermo-printer, a smart card reader, and two magnetic card readers, as well as I^2C-based port to link with a I^2C-based LCD display module. Furthermore, each commercial PDA is equipped with 2 serial-based links: one to the primary TeamProcessor and the other to the secondary TeamProcessor, so that if one should fail, the onboard microprocessor can switch the connection to the backup TeamProcessor, which will resume the user-interactivity-based processes.

BNSDOCID: <WO__0122325A1_I_>

Since the preferred commercial PDA system contains a workgroup server array, highly available, scaleable, mission critical onsite E-Commerce services can be achieved. It can be further expanded into a 4-TeamProcessor, 8-TeamProcessor, even a 12-TeamProcessor-based workgroup server array. In a larger service environment, the preferred workgroup-server array-based commercial PDA system can be expanded into workgroup server cluster-based commercial PDA system, serving thousand of concurrent users, in commercial sites, such as hotels, cruisers and airplanes. The details regarding the preferred commercial PDA systems are illustrated in provisional application Serial No. 60/135,318.

3. The hardware implementation of remote control module:

As shown in FIG. 6D, a functional block diagram for implementing a preferred embodiment of the handheld unit is illustrated. The handheld unit is comprised of Zilog IR controller as a main microprocessor, serial E^2PROM, a keypad, IR emitters for long and short range, an IR receiving module. It is also equipped with an I^2C-based 4-line x 20-character LCD, in which Channel number, Date/Time, the name of the TV program, descriptive and advertising information can all be displayed. The unit is capable of controlling at least 3 devices (TV, VCR, Cable Set-top-box) based on Universal Remote Control codes. The unit first has to run a set up operation, so that all the TV channels on a particular TV are the same as the TV channels resided in the handheld unit. The date and time mechanism provided by the microprocessor will be adjusted daily by using either FM method or by communicating with the base unit.

NSDOCID: <WO___0122325A1_I_>

As shown in FIG. 6E, a functional block diagram for implementing a preferred embodiment of the base unit is illustrated. The based unit is comprised of Zilog Z8 controller as a main microprocessor, serial E^2PROM, IR emitters for long and short range, an IR receiving module. It can communicate with the handheld unit via IR to receive E-Lead data real time and store them in the E^2PROM memory. It is also equipped with modem chipset, which allows E-Lead data to be transferred to the modem server installed inside the inventive system, receives descriptive and advertising data from the modem server and stores them in the E^2PROM memory. It can further transfer the desired descriptive and advertising data to the handheld unit for display based on user's request.

THE OVERALL IMPLEMENTATION OF THE PRESENT INVENTION

As shown in FIG. 7, the preferred embodiment of the present inventive system, in which online servers are implemented by using workgroup server array, as described in provisional patent application 60/135,318, and onsite server and commercial PDAs are implementing by commercial PDA system, as described in provisional application 60/135,318. The UP-based online user-interface units, VP-based and AP-based online and onsite servers are also included.

Other platform-centric apparatuses yet comprise another type of database servers, which can be used to implement onsite and online real-time monitoring and management services, so that overall platform services and monitoring data can be obtained and managed accordingly. As shown, MWGS, which is an

BNSDOCID: <WO__0122325A1_I_>

operational workgroup server array interfaces with platform-centric servers, which generates management and monitoring data for different OP database servers, so that management services and performance on the preferred embodiment of the present invention can be optimized.

(SERVER CONFIGURATIONS)

The hardware implementation of server-based apparatuses, further is implemented with preferred Server-configuration, which involves hardware source allocation, Database structure, file structure with data flow diagrams, which dictates the preferred software-based operational service-based platform infrastructure upon the preferred hardware embodiment of the present invention.

FIG. 8A(1) and 8A(2), each illustrates an implementation of a preferred server configuration and data flow of Site-based SWGS-1 and SWGS-n respectively using a 2-TeamProcessor-based server array.

FIG. 8B(1) and 8B(2), each illustrates an implementation of a preferred server configuration and data flow of Proxy-based XWGS-1 and XWGS-n respectively using a 8-TeamProcessor-based server array.

FIG. 8C(1) and 8C(2), each illustrates an implementation of a preferred server configuration and data flow of User-based UWGS-1 and UWGS-n respectively using a 8-TeamProcessor-based server array.

NSDOCID: <WO 0122325A1 >

FIG. 8D(1) and 8D(2), each illustrates an implementation of a preferred server configuration and data flow of Vendor-based VWGS-1 and VWGS-n respectively using a 8-TeamProcessor-based server array.

FIG. 8E(1) and 8E(2), each illustrates an implementation of a preferred server configuration and data flow of Transaction-based TWGS-1 and TWGS-n respectively using a 8-TeamProcessor-based server array.

FIG. 8F(1) and 8F(2), each illustrates an implementation of a preferred server configuration and data flow of E-ShowCase-based AWGS-1 and AWGS-n respectively using a 8-TeamProcessor-based server array.

FIG. 8G(1) and 8G(2), each illustrates an implementation of a preferred server configuration and data flow of E-AdPage-based AWGS-1 and AWGS-n respectively using a 8-TeamProcessor-based server array.

FIG. 8H(1) and 8H(2), each illustrates an implementation of a preferred server configuration and data flow of E-MarketPlace-based AWGS-1 and AWGS-n respectively using a 8-TeamProcessor-based server array.

FIG. 8I(1) and 8I(2), each illustrates an implementation of a preferred server configuration and data flow of E-Classified-based AWGS-1 and AWGS-n respectively using a 8-TeamProcessor-based server array.

3NSDOCID: <WO__0122325A1_I_>

FIG. 8J(1) illustrates an implementation of a preferred server configuration and data flow of E-MarketPlace-based PWGS using a 8-TeamProcessor-based server array.

FIG. 8J(2) illustrates an implementation of a preferred server configuration and data flow of E-Classified-based PWGS using a 8-TeamProcessor-based server array.

THE IMPLEMENTATION OF DEFINED SERVICES

Furthermore, based on the preferred embodiment of the present invention, the inventive E-Commerce services from J^1 to J^{13}, as described before, can be implemented.

As will now be understood, the present invention provides an interactive advertising-based transaction-enabling system and methods for implementing smart card-based commingled online and onsite E-Commerce services using E-Commerce boxes.

INSDOCID: <WO___0122325A1_I_>

Additions and modifications will readily occur to those skilled in the art. The invention in its broader aspects is therefore not limited to the specific details, representative apparatus, and illustrative examples shown and described. Accordingly, modifications may be made from such details without departing from the spirit or the scope of Applicant's general inventive concept, which is limited only by the appended claims and equivalents thereof.

CLAIMS

1. An apparatus for facilitating electronic commerce between a merchant and at least one user and with improved reliability; the apparatus comprising:

at least one remote user interface connected through an Internet service provider to an online merchant;

said online merchant having an electronic commerce infrastructure having a plurality of application servers, a plurality of database servers and a plurality of load balancing servers;

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of servers commonly connected to a database of the merchant's products;

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of servers commonly connected to a database of user records; and

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of servers commonly connected to a database of merchant/user transactions conducted online.

2. An apparatus for facilitating electronic commerce between a merchant and at least one user and with improved reliability; the apparatus comprising:

NSDOCID: <WO 0122325A1 >

Claim 2. continued

at least one onsite user interface connected through a local area network to an onsite merchant;

said onsite merchant having an electronic commerce infrastructure having at least one application server and at least one database server;

said at least one application server and said at least one database server being interconnected as an array of servers commonly connected to a database of the merchant's products;

said at least one application server and said at least one database server being interconnected as an array of servers commonly connected to a database of user records; and

said at least one application server and said at least one database server being interconnected as an array of servers commonly connected to a database of merchant/user transactions conducted onsite.

3. An apparatus for facilitating electronic commerce with improved reliability between a plurality of merchants and a plurality of users, some of the users being remote users communicating with the merchants online over an Internet service and some of the users being onsite users communicating with merchants onsite over a local communications network; the apparatus comprising:

3NSDOCID: <WO___0122325A1_I_>

Claim 3. continued

said online merchants having an electronic commerce infrastructure having a plurality of application servers, a plurality of database servers and a plurality of load balancing servers;

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of servers commonly connected to a database of the merchant's products;

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of servers commonly connected to a database of user records; and

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of servers commonly connected to a database of merchant/user transactions conducted online;

said onsite merchants having an electronic commerce infrastructure having a plurality of application servers, a plurality of database servers and a plurality of load balancing servers;

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of servers commonly connected to a database of the merchant's products;

BNSDOCID: <WO___0122325A1_I_>

Claim 3. continued

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of servers commonly connected to a database of user records; and

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of servers commonly connected to a database of merchant/user transactions conducted onsite;

said online merchants and said onsite merchants being in communication with a common data center over an Internet service, said data center having an infrastructure comprising:

a plurality of data center application servers, a plurality of data center database servers and a plurality of data center load balancing servers;

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a server array commonly connected to a merged database of merchants' products;

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a server array commonly connected to a merged database of users' records; and

3NSDOCID: <WO__0122325A1_I_>

Claim 3. continued

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a server array commonly connected to a merged database of merchant/user transactions conducted online and onsite.

4. The apparatus recited in claim 3 wherein in said common data center infrastructure at least one of said merged databases comprises commingled online merchant and onsite merchant data.

5. The apparatus recited in claim 3 wherein said common data center infrastructure further comprises:

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a server array commonly connected to a merged advertising database to provide advertisement content control and selection for said merchants.

NSDOCID: <WO__0122325A1_I_>

6. The apparatus recited in claim 3 wherein said common data center infrastructure further comprises:

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a server array commonly connected to a merged purchase-incentive database to provide purchase-incentive content and selection for said merchants.

7. The apparatus recited in claim 1 wherein said at least one remote user interface comprises a smart card reader.

8. The apparatus recited in claim 1 wherein said at least one remote user interface comprises a web-access enabled television.

9. The apparatus recited in claim 1 wherein said at least one remote user interface comprises a web-access enabled PC.

10. The apparatus recited in claim 1 wherein said at least one remote user interface comprises a wireless device.

11. The apparatus recited in claim 2 wherein said at least one onsite user interface comprises a smart card reader.

BNSDOCID: <WO___0122325A1_I_>

12. The apparatus recited in claim 2 wherein said at least one onsite user interface comprises a wireless device.

13. The apparatus recited in claim 3 wherein said at least one remote user interface comprises a smart card reader.

14. The apparatus recited in claim 3 wherein said at least one remote user interface comprises a wireless device.

15. The apparatus recited in claim 3 wherein said at least one remote user interface comprises a web-access enabled television.

16. The apparatus recited in claim 3 wherein said at least one remote user interface comprises a web-access enabled PC.

17. The apparatus recited in claim 3 wherein said at least one onsite user interface comprises a wireless device.

18. The apparatus recited in claim 3 wherein said at least one onsite user interface comprises a smart card reader.

19. An apparatus for facilitating electronic commerce between merchants and users, some of the merchants being online and in communication with online users through an Internet service, some of the merchants providing onsite communication with onsite users; the apparatus comprising:

a data center in communications over an Internet service with said merchants and having a plurality of application servers, a plurality of database servers and a plurality of load balancing servers;

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a server array commonly connected to a merged database of merchants' products;

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a server array commonly connected to a merged database of users' records; and

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a server array commonly connected to a merged database of merchant/user transactions conducted online and onsite.

20. The apparatus recited in claim 19 wherein in said common data center infrastructure at least one of said merged databases comprises commingled online merchant and onsite merchant data.

BNSDOCID: <WO___0122325A1_I_>

21. The apparatus recited in claim 19 wherein said common data center infrastructure further comprises:

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a server array commonly connected to a merged advertising database to provide advertisement content control and selection for said merchants.

22. The apparatus recited in claim 19 wherein said common data center infrastructure further comprises:

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a server array commonly connected to a merged purchase-incentive database to provide purchase-incentive content and selection for said merchants.

23. The apparatus recited in claim 19 wherein at least one of said online users uses a smart card reader to communicate with an online merchant.

24. The apparatus recited in claim 19 wherein at least one of said onsite users uses a smart card reader to communicate with an onsite merchant.

BNSDOCID: <WO 0122325A1 I >

25. The apparatus recited in claim 19 wherein at least one of said onsite and online users uses a wireless device to communicate with a merchant.

26. The apparatus recited in claim 19 wherein at least one of said online users uses a web-connected television to communicate with an online merchant.

27. The apparatus recited in claim 19 wherein at least one of said online users uses a web access enabled PC to communicate with an online merchant.

28. An apparatus for facilitating electronic commerce between a merchant and at least one user and with improved reliability; the apparatus comprising:

at least one remote user interface connected through an Internet service provider to an online merchant;

said online merchant having an electronic commerce infrastructure having a plurality of application servers, a plurality of database servers and a plurality of load balancing servers, said servers being configured as a workgroup-based server array;

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of workgroup servers commonly connected to a database of the merchant's products;

BNSDOCID: <WO___0122325A1_I_>

Claim 28. continued

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of workgroup servers commonly connected to a database of user records; and

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of workgroup servers commonly connected to a database of merchant/user transactions conducted online.

29. An apparatus for facilitating electronic commerce between a merchant and at least one user and with improved reliability; the apparatus comprising:

at least one onsite user interface connected through a local area network to an onsite merchant;

said onsite merchant having an electronic commerce infrastructure having at least one application server and at least one database server, said servers being configured as a workgroup-based server array;

said at least one application server and said at least one database server being interconnected as an array of workgroup servers commonly connected to a database of the merchant's products;

said at least one application server and said at least one database server being interconnected as an array of workgroup servers commonly connected to a database of user records; and

BNSDOCID: <WO__0122325A1_I_>

Claim 29. continued

said at least one application server and said at least one database server being interconnected as an array of workgroup servers commonly connected to a database of merchant/user transactions conducted onsite.

30. An apparatus for facilitating electronic commerce with improved reliability between a plurality of merchants and a plurality of users, some of the users being remote users communicating with the merchants online over an Internet service and some of the users being onsite users communicating with merchants onsite over a local communications network; the apparatus comprising:

said online merchants having an electronic commerce infrastructure having a plurality of application servers, a plurality of database servers and a plurality of load balancing servers, said servers being configured as a workgroup-based server array;

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of workgroup servers commonly connected to a database of the merchant's products;

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of workgroup servers commonly connected to a database of user records; and

BNSDOCID: <WO___0122325A1_I_>

Claim 30. Continued

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of workgroup servers commonly connected to a database of merchant/user transactions conducted online;

said onsite merchants having an electronic commerce infrastructure having a plurality of application servers, a plurality of database servers and a plurality of load balancing servers, said servers being configured as a workgroup-based server array;

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of workgroup servers commonly connected to a database of the merchant's products;

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of workgroup servers commonly connected to a database of user records; and

at least one of each of said application servers, database servers and load balancing servers being interconnected as an array of workgroup servers commonly connected to a database of merchant/user transactions conducted onsite;

said online merchants and said onsite merchants being in communication with a common data center over an Internet service, said data center having an infrastructure comprising:

a plurality of data center application servers, a plurality of data center database servers and a plurality of data center load balancing servers, said data center servers being configured as a workgroup-based server array;

NSDOCID: <WO___0122325A1_I_>

Claim 30. continued

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a workgroup server array commonly connected to a merged database of merchants' products;

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a workgroup server array commonly connected to a merged database of users' records; and

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a workgroup server array commonly connected to a merged database of merchant/user transactions conducted online and onsite.

31. The apparatus recited in claim 30 wherein in said common data center infrastructure at least one of said merged databases comprises commingled online merchant and onsite merchant data.

BNSDOCID: <WO___0122325A1_I_>

32. The apparatus recited in claim 30 wherein said common data center infrastructure further comprises:

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a workgroup server array commonly connected to a merged advertising database to provide advertisement content control and selection for said merchants.

33. The apparatus recited in claim 30 wherein said common data center infrastructure further comprises:

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a workgroup server array commonly connected to a merged purchase-incentive database to provide purchase-incentive content and selection for said merchants.

34. The apparatus recited in claim 28 wherein said at least one remote user interface comprises a smart card reader.

35. The apparatus recited in claim 28 wherein said at least one remote user interface comprises a web-access enabled television.

36. The apparatus recited in claim 28 wherein said at least one remote user interface comprises a web-access enabled PC.

BNSDOCID: <WO__0122325A1_I_>

37. The apparatus recited in claim 28 wherein said at least one remote user interface comprises a wireless device.

38. The apparatus recited in claim 29 wherein said at least one onsite user interface comprises a smart card reader.

39. The apparatus recited in claim 29 wherein said at least one onsite user interface comprises a wireless device.

40. The apparatus recited in claim 30 wherein said at least one remote user interface comprises a smart card reader.

41. The apparatus recited in claim 30 wherein said at least one remote user interface comprises a wireless device.

42. The apparatus recited in claim 30 wherein said at least one remote user interface comprises a web-access enabled television.

43. The apparatus recited in claim 30 wherein said at least one onsite user interface comprises a wireless device.

44. The apparatus recited in claim 30 wherein said at least one onsite user interface comprises a smart card reader.

BNSDOCID: <WO___0122325A1_I_>

45. The apparatus recited in claim 30 wherein said at least one remote user interface comprises a web-access enabled PC.

46. An apparatus for facilitating electronic commerce between merchants and users, some of the merchants being online and in communication with online users through an Internet service, some of the merchants providing onsite communication with onsite users; the apparatus comprising:

a data center in communications over an Internet service with said merchants and having a plurality of application servers, a plurality of database servers and a plurality of load balancing servers, said servers being configured as a workgroup-based server array;

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a workgroup server array commonly connected to a merged database of merchants' products;

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a workgroup server array commonly connected to a merged database of users' records; and

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a workgroup server array commonly connected to a merged database of merchant/user transactions conducted online and onsite.

BNSDOCID: <WO___0122325A1_I_>

47. The apparatus recited in claim 46 wherein in said common data center infrastructure at least one of said merged databases comprises comingled online merchant and onsite merchant data.

48. The apparatus recited in claim 46 wherein said common data center infrastructure further comprises:

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a workgroup server array commonly connected to a merged advertising database to provide advertisement content control and selection for said merchants.

49. The apparatus recited in claim 46 wherein said common data center infrastructure further comprises:

at least one of each of said data center application servers, data center database servers and data center load balancing servers being interconnected as a workgroup server array commonly connected to a merged purchase-incentive database to provide purchase-incentive content and selection for said merchants.

50. The apparatus recited in claim 46 wherein at least one of said online users uses a smart card reader to communicate with an online merchant.

BNSDOCID: <WO___0122325A1_I_>

51. The apparatus recited in claim 46 wherein at least one of said onsite users uses a smart card reader to communicate with an onsite merchant.

52. The apparatus recited in claim 46 wherein at least one of said online users uses a web-connected television to communicate with an online merchant.

53. The apparatus recited in claim 46 wherein at least one of said onsite and online users uses a wireless device to communicate with a merchant.

54. An apparatus for facilitating electronic commerce between merchants and users, the merchants providing online and onsite communication with online and onsite users by employing user interface units and a merged and commingled online and onsite data infrastructure; the apparatus comprising:

an infrastructure having a plurality of servers grouped into a plurality of server arrays, at least one such array being connected to a merged and commingled database of onsite and online merchants' advertising data;

a plurality of user interface units, some of said interface units being onsite and some of said interface units being at online user locations; at least some of said interface units being activated by user smart cards;

3NSDOCID: <WO___0122325A1_I_>

Claim 54. continued

at least some of said onsite user interface units being directly triggered by users to provide display of selected advertising data; at least some of said onsite user interface units being indirectly triggered by users to provide display of selected advertising data; and at least some of said onsite user interface units being triggered by a wireless device to provide display of selected advertising data.

55. The apparatus recited in claim 54 wherein at least some of said online user interface units are PCs having internet browser capability.

56. The apparatus recited in claim 54 wherein at least some of said online user interface units are web-enabled television receivers.

57. The apparatus recited in claim 55 wherein at least some of said online user interface units are web-enabled wireless devices.

58. The apparatus recited in claim 54 wherein said advertising data comprises audio, video and text-formatted information.

59. The apparatus recited in claim 54 wherein said advertising data comprises data relating to purchasing incentives.

60. An apparatus for facilitating electronic commerce between a merchant and users; the apparatus comprising:

means for enabling users to trigger and display electronic commerce-related services;

means for aggregating a merchant's electronic commerce services in a data facility;

means for responding to user-triggered services with the merchant's services; and

means for managing the delivery of the responsive merchant's services.

61. The apparatus recited in claim 60 further comprising means for automatic user authentication.

62. The apparatus recited in claim 60 further comprising means for automatic time-based management of the merchant's services.

63. The apparatus recited in claim 60 further comprising means for incorporating the merchant's advertising in said data center.

3NSDOCID: <WO___0122325A1_I_>

64. The apparatus recited in claim 60 further comprising means for incorporating service purchase incentives into said data center.

65. An apparatus for facilitating electronic commerce between merchants and users; the apparatus comprising:

means for enabling users to trigger and display electronic commerce-related services;

means for aggregating the merchants' electronic commerce services in a data facility;

means for responding to user-triggered services with the merchants' services; and

means for managing the delivery of the responsive merchants' services.

66. The apparatus recited in claim 65 further comprising means for automatic user authentication.

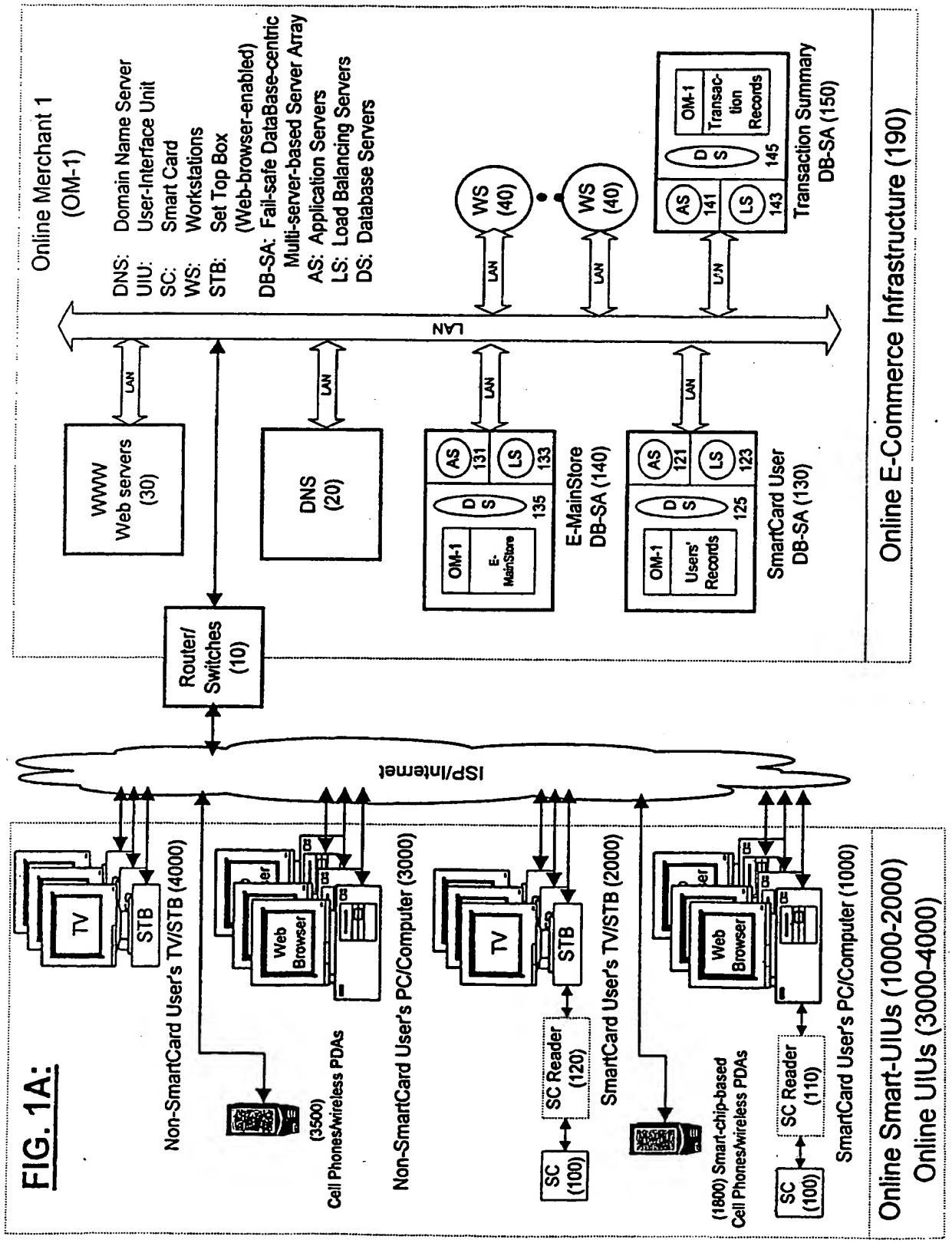
67. The apparatus recited in claim 65 further comprising means for automatic time-based management of the merchants' services.

68. The apparatus recited in claim 65 further comprising means for incorporating the merchants' advertising in said data center.

3NSDOCID: <WO__0122325A1_I_>

69. The apparatus recited in claim 65 further comprising means for incorporating service purchase incentives into said data center.

3NSDOCID: <WO___0122325A1_I_>



BNSDOCID: <WO___0122325A1_I_>

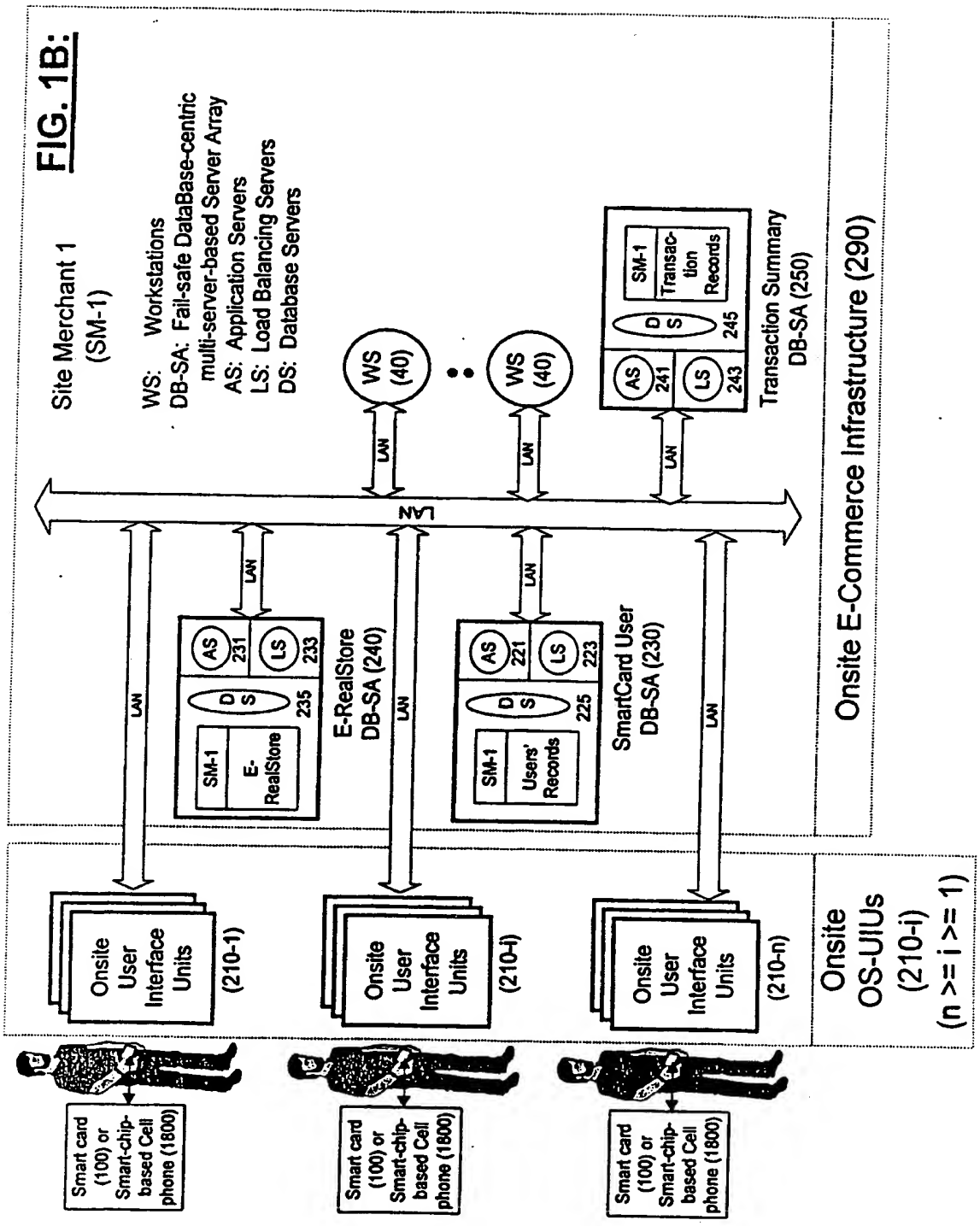
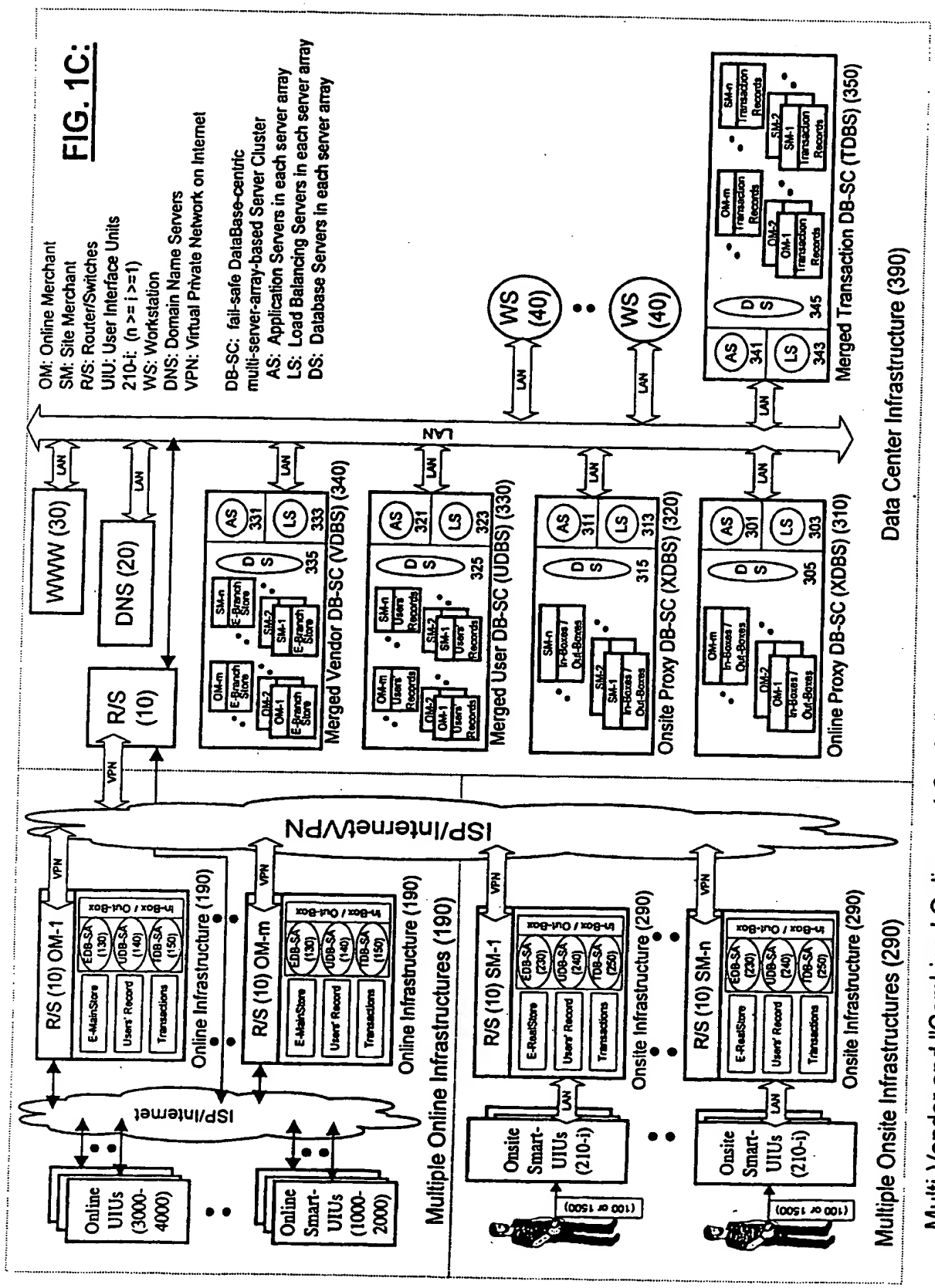
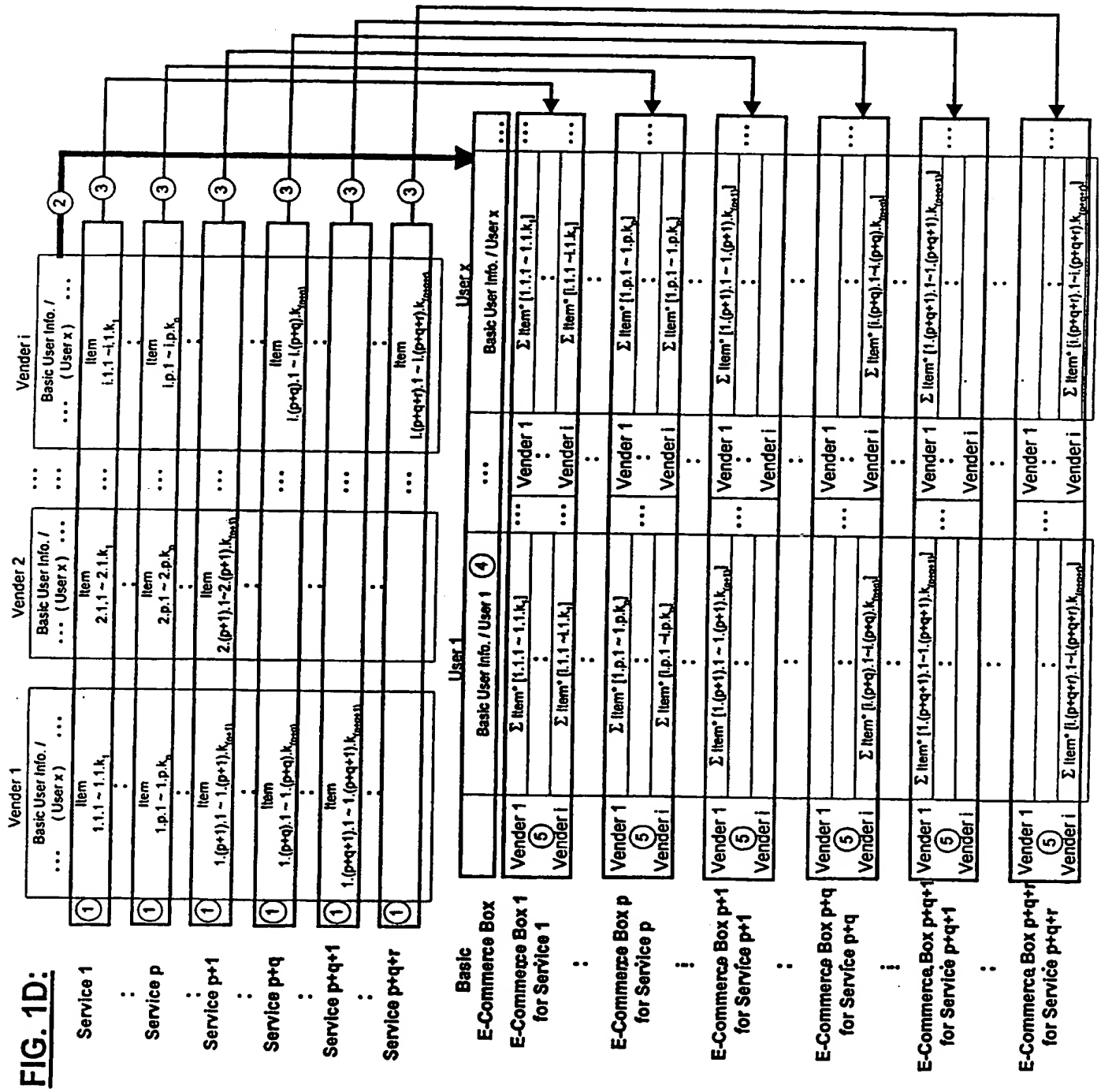


FIG. 1B:
Site Merchant 1 (SM-1)
WS: Workstations
DB-SA: Fail-safe DataBase-centric multi-server-based Server Array
AS: Application Servers
LS: Load Balancing Servers
DS: Database Servers
WS (40)
WS (40)
LAN
AS 241
LS 243
DS 245
SM-1 Transaction Records
Transaction Summary DB-SA (250)
Onsite E-Commerce Infrastructure (290)
AS 231
LS 233
DS 235
SM-1 E-RealStore
E-RealStore DB-SA (240)
AS 221
LS 223
DS 225
SM-1 Users' Records
SmartCard User DB-SA (230)
Onsite User Interface Units (210-1)
Onsite User Interface Units (210-i)
Onsite User Interface Units (210-n)
Onsite OS-UIUs (210-i) (n >= i >= 1)
Smart card (100) or Smart-chip-based Cell phone (1800)
Smart card (100) or Smart-chip-based Cell phone (1800)
Smart card (100) or Smart-chip-based Cell phone (1800)



3NSDOCID: <WO___0122325A1_I_>

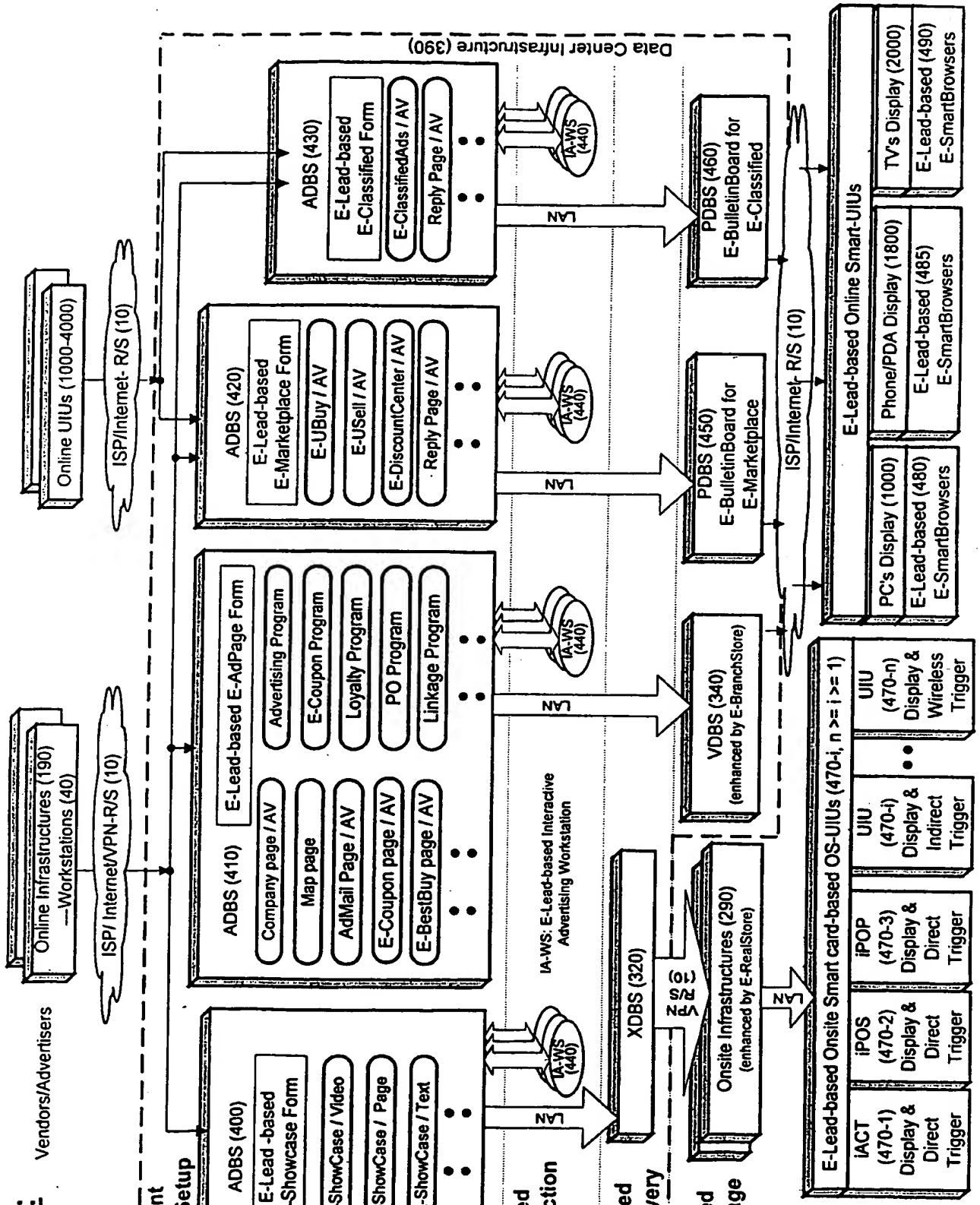
FIG. 1D:



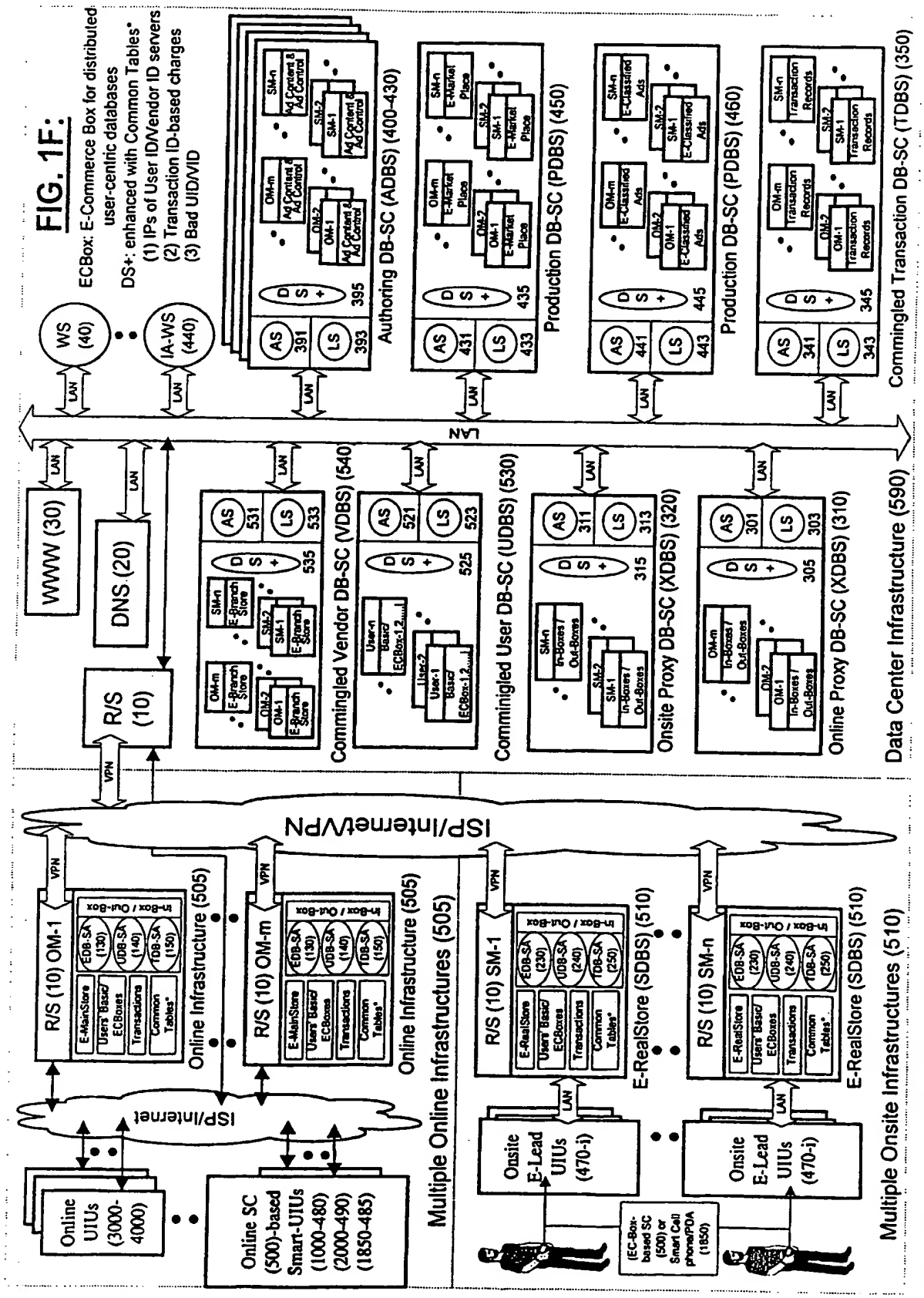
(1) Item i,j.k_j: Item i,j based on Transaction k_j, where i: # of vendors; j: # of services; k_j >= 1
(2) 2 <= i <= m + n, m >= 1, n >= 1, where m: # of online merchants; n: # of site merchants
(3) 1 <= j <= p+q+r, p >= 1, [i/2] >= q >= 0, i >= r >= 0, where p: # of common services; q: # of group services; r: # of individual services
(4) Item' i,j : Item i,j + UID, where UID: User ID, preferably using Smart Card ID.

INSDOCID: <WO___0122325A1_I_>

FIG. 1E:

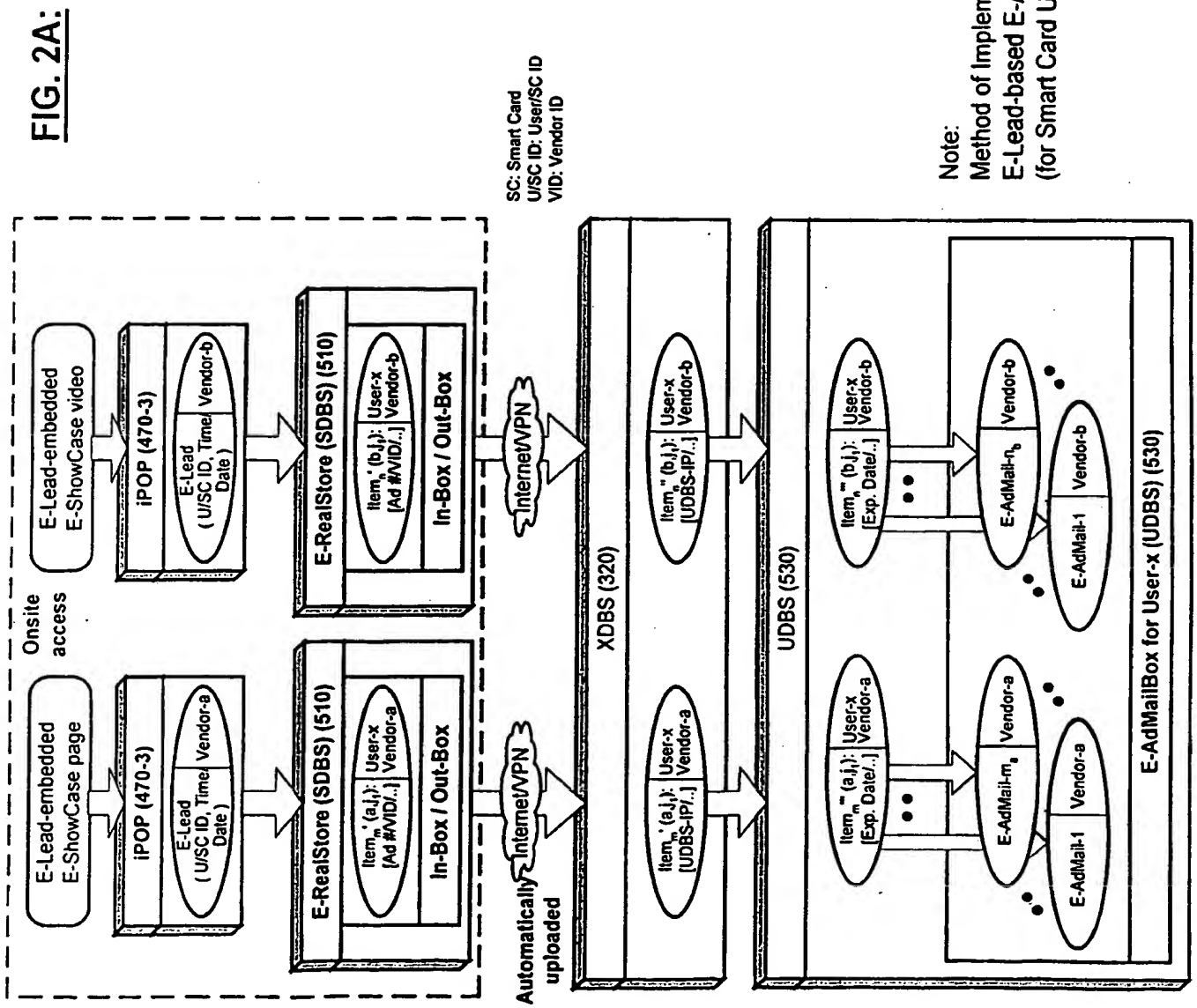


BNSDOCID: <WO___0122325A1_I_>



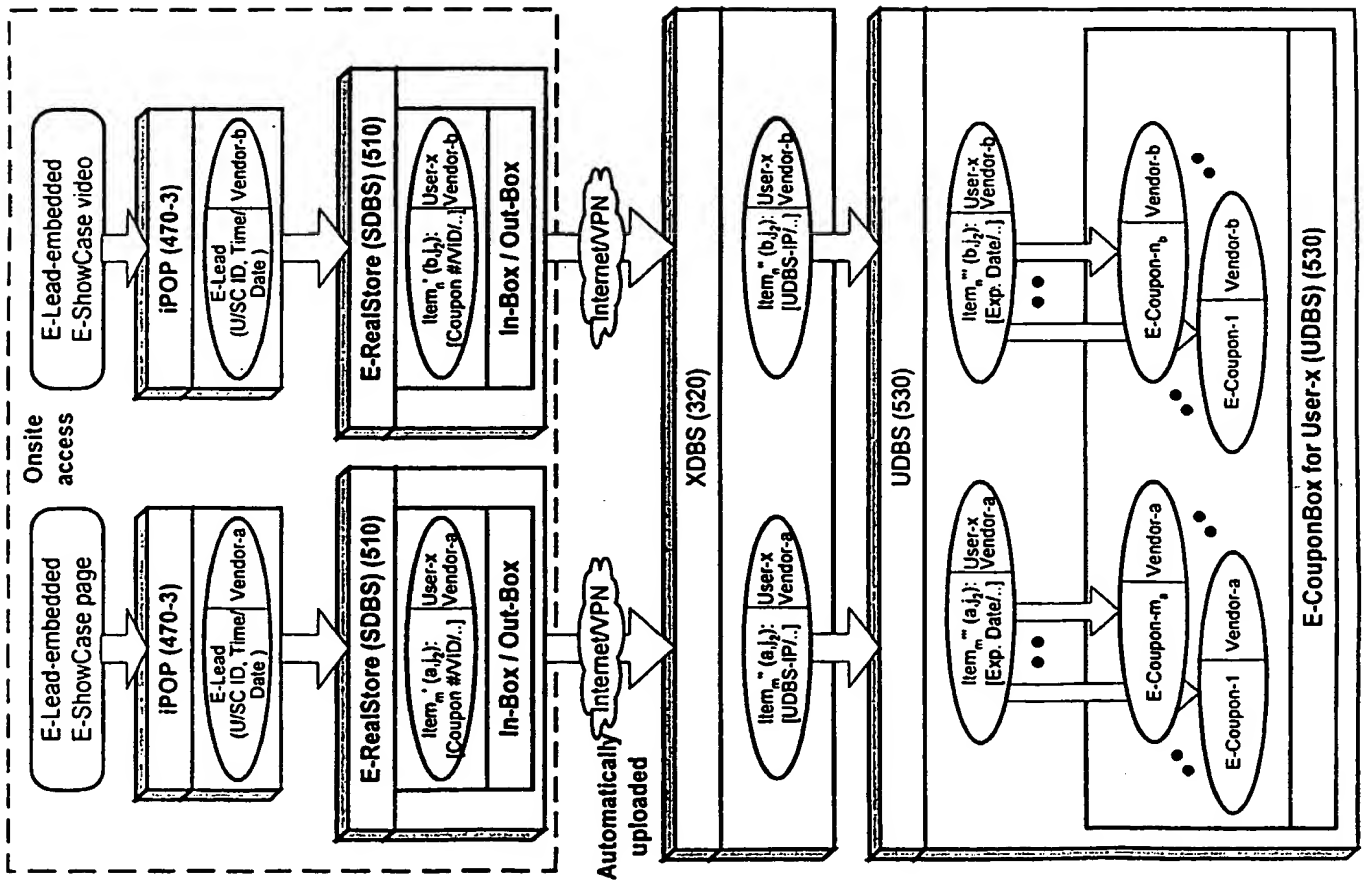
Interactive advertising "Multi-Vendor" and "Multi-Channel Network System with multiple 505s, 510s, and at least one 590

FIG. 2A:



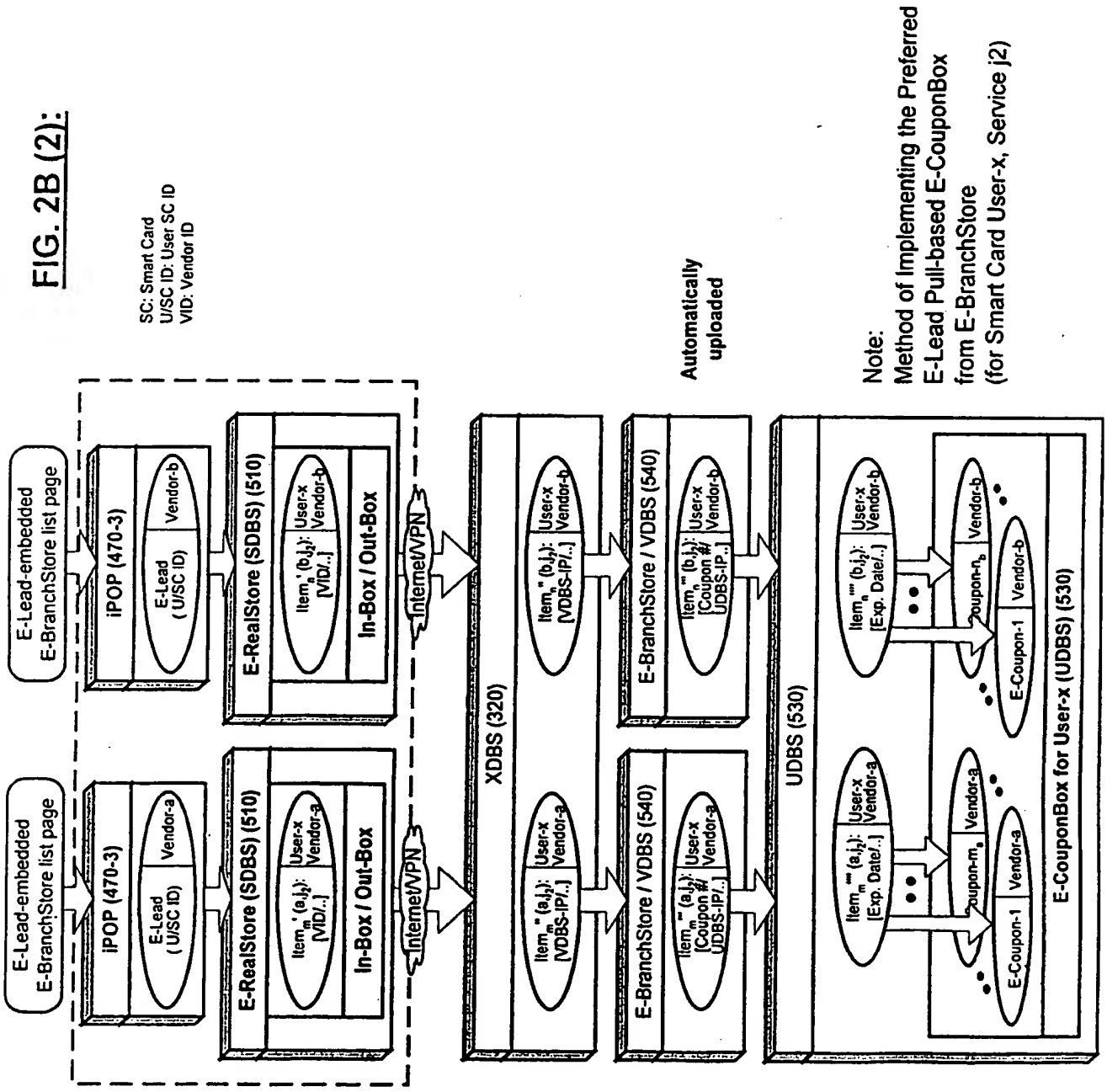
3NSDOCID: <WO___0122325A1_I_>

FIG. 2B (1):



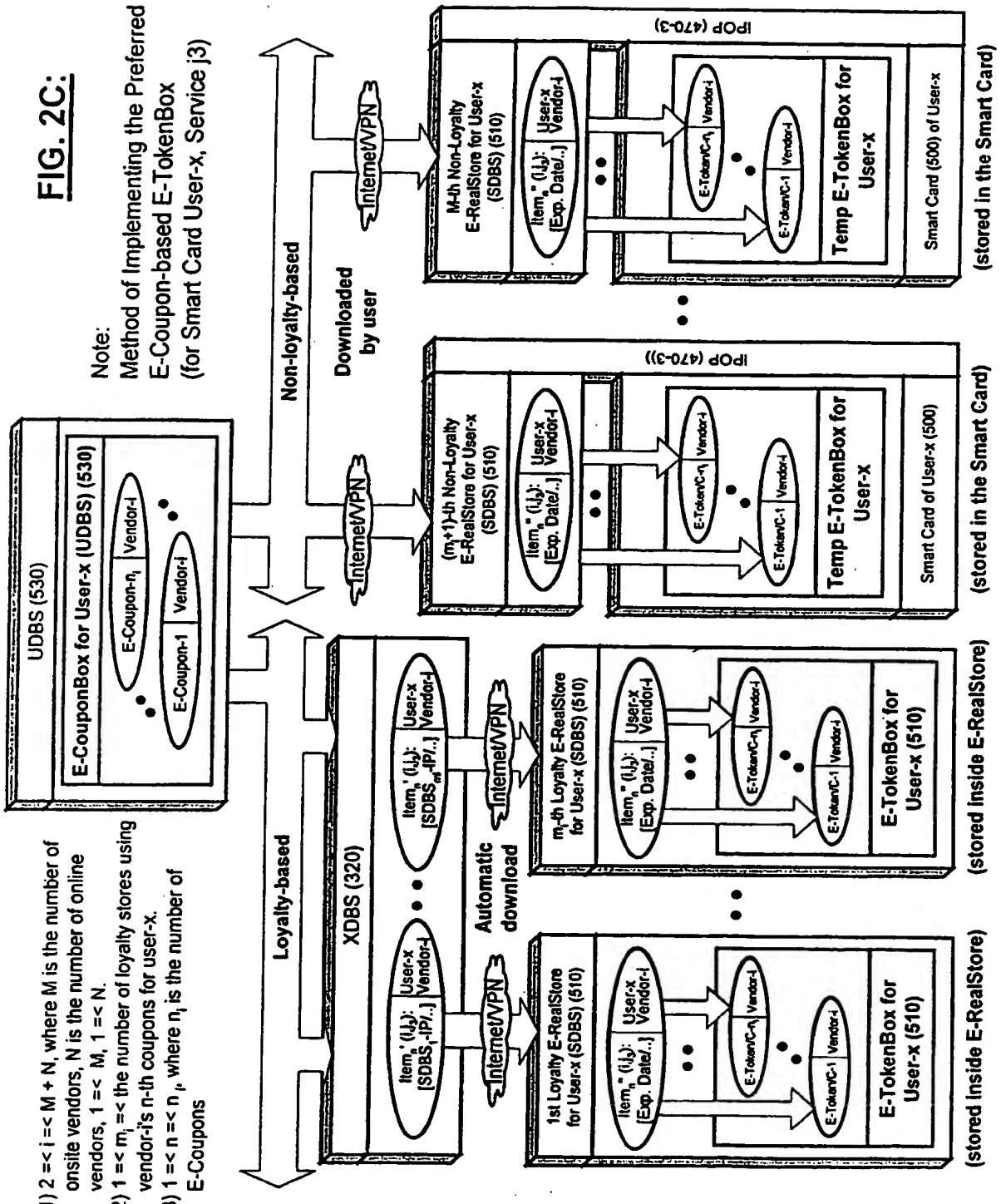
3NSDOCID: <WO___0122325A1_I_>

FIG. 2B (2):



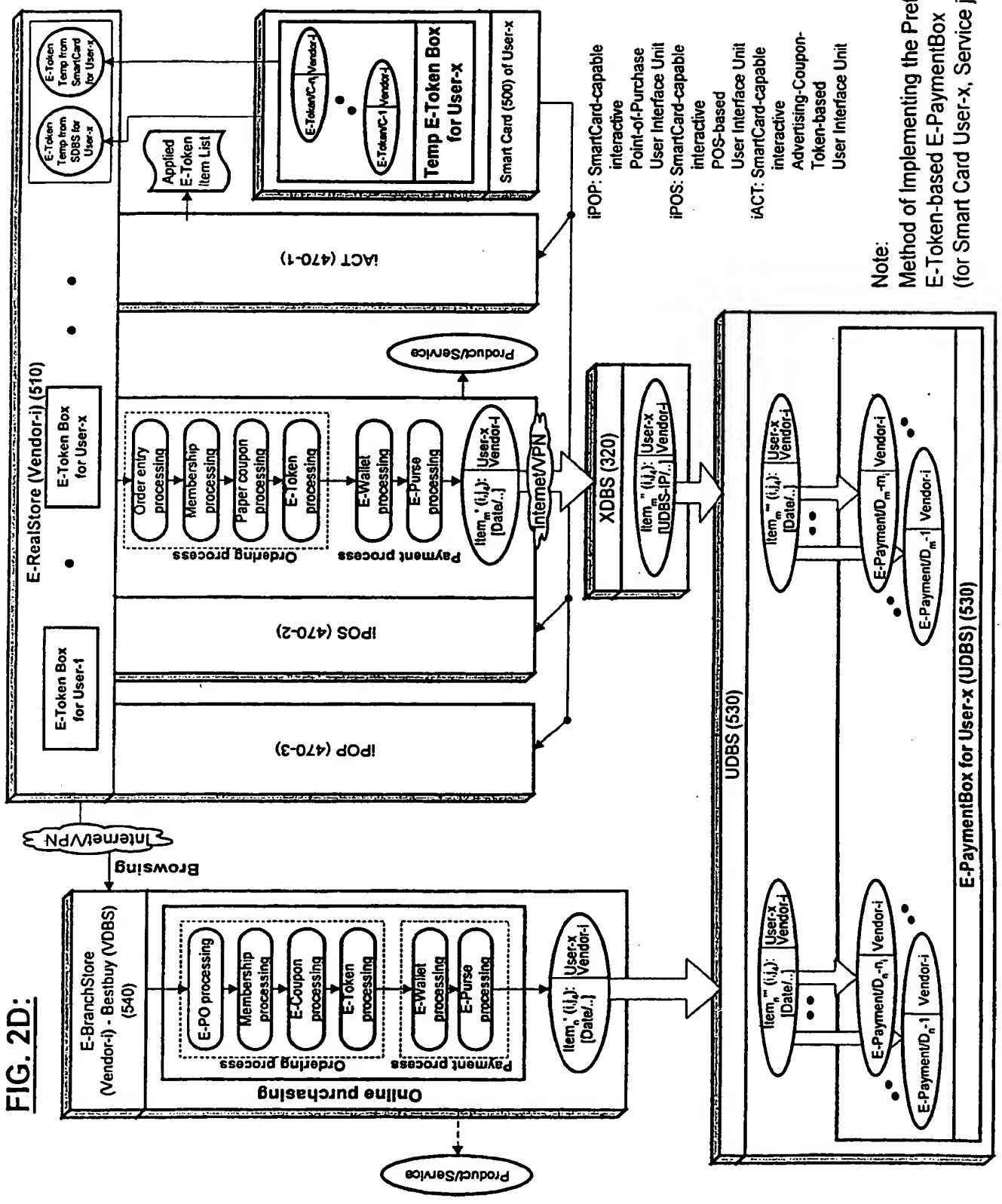
BNSDOCID: <WO___0122325A1_I_>

FIG. 2C:



INSDOCID: <WO___0122325A1_I_>

FIG. 2D:



SUBSTITUTE SHEET (RULE 26)

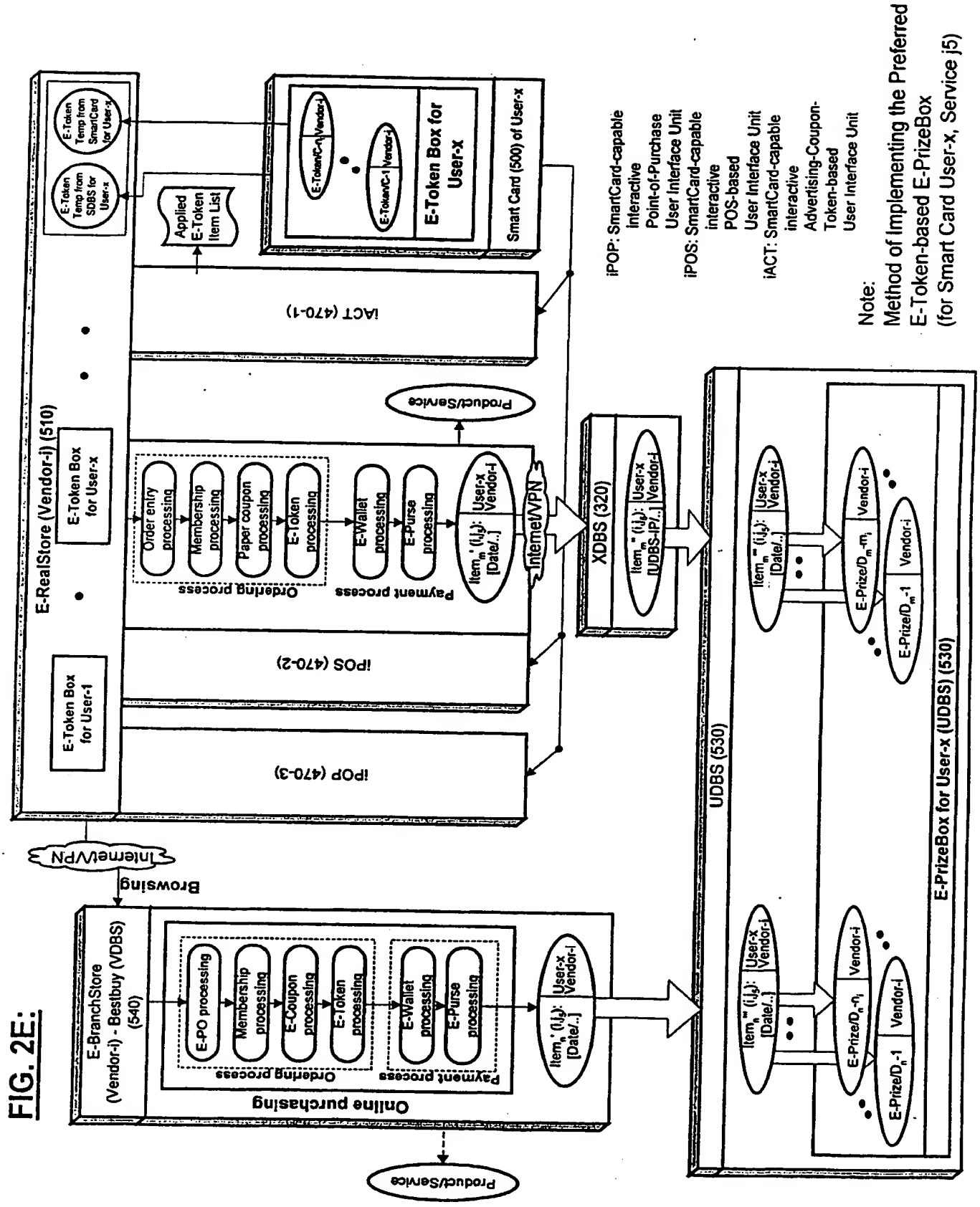


FIG. 2E:

3NSDOCID: <WO___0122325A1_I_>

FIG. 2F:

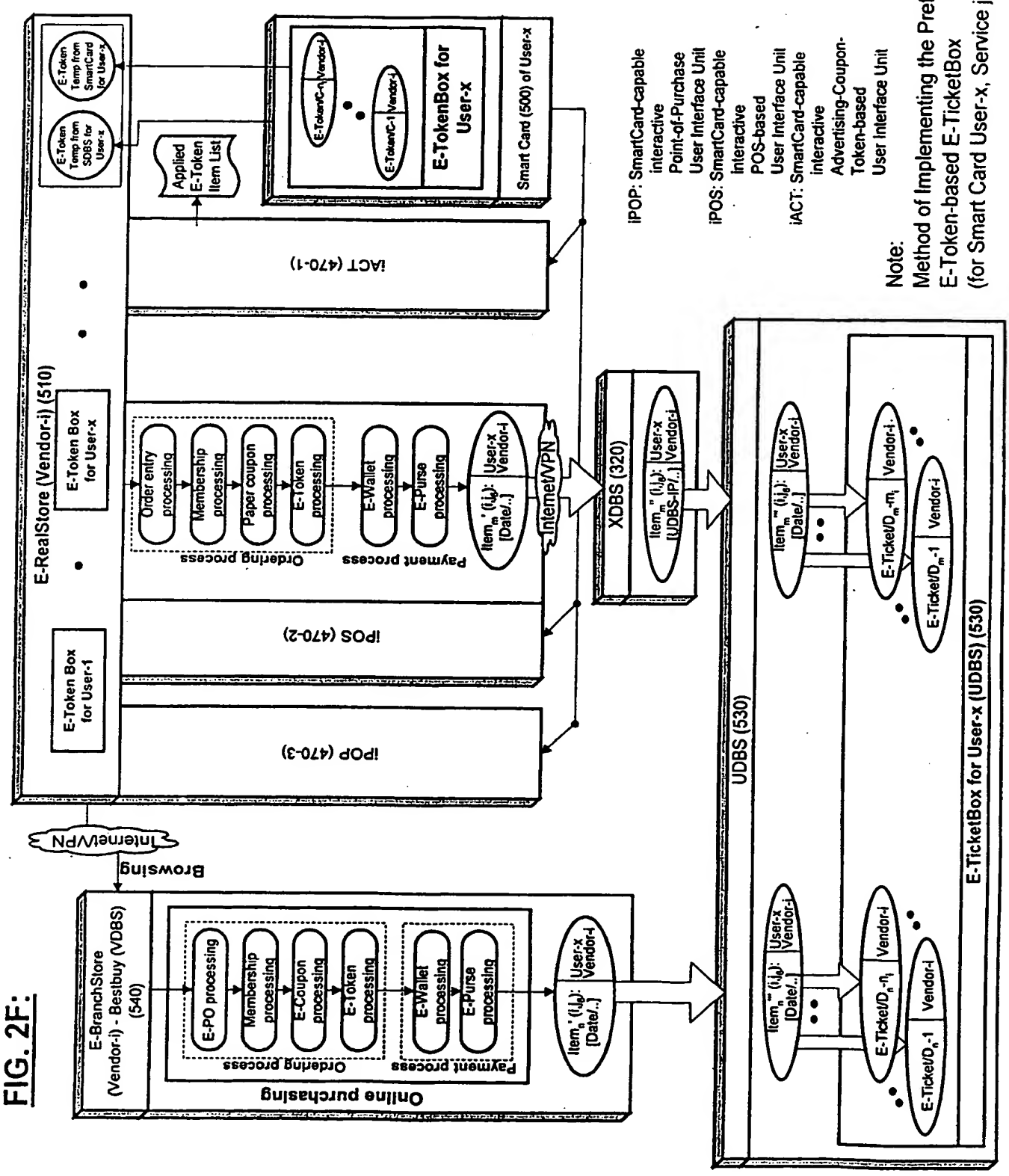

Note:
Method of Implementing the Preferred E-Token-based E-TicketBox (for Smart Card User-x, Service j6)
iPOP: SmartCard-capable interactive Point-of-Purchase User Interface Unit
iPOS: SmartCard-capable interactive POS-based User Interface Unit
iACT: SmartCard-capable interactive Advertising-Coupon-Token-based User Interface Unit
Online purchasing
E-BranchStore (Vendor-i) - Bestbuy (VDBS) (540)
E-PO processing
Membership processing
E-Coupon processing
E-Token processing
E-Wallet processing
E-Purse processing
Ordering process
Payment process
Browsing
Internet/VPN
E-RealStore (Vendor-i) (510)
E-Token Box for User-1
E-Token Box for User-x
iPOP (470-3)
iPOS (470-2)
iACT (470-1)
Order entry processing
Membership processing
Paper coupon processing
E-Token processing
E-Wallet processing
E-Purse processing
Internet/VPN
XDBS (320)
UDBS (530)
E-TicketBox for User-x (UDBS) (530)
E-Ticket/D_n-1
E-Ticket/D_n-n_1
E-Ticket/D_m-1
E-Ticket/D_m-m_i
Vendor-i
User-x Vendor-i
Applied E-Token Item List
E-Token Temp from SDBS for User-x
E-Token Temp from SmartCard for User-x
E-TokenBox for User-x
Smart Card (500) of User-x

FIG. 2G:

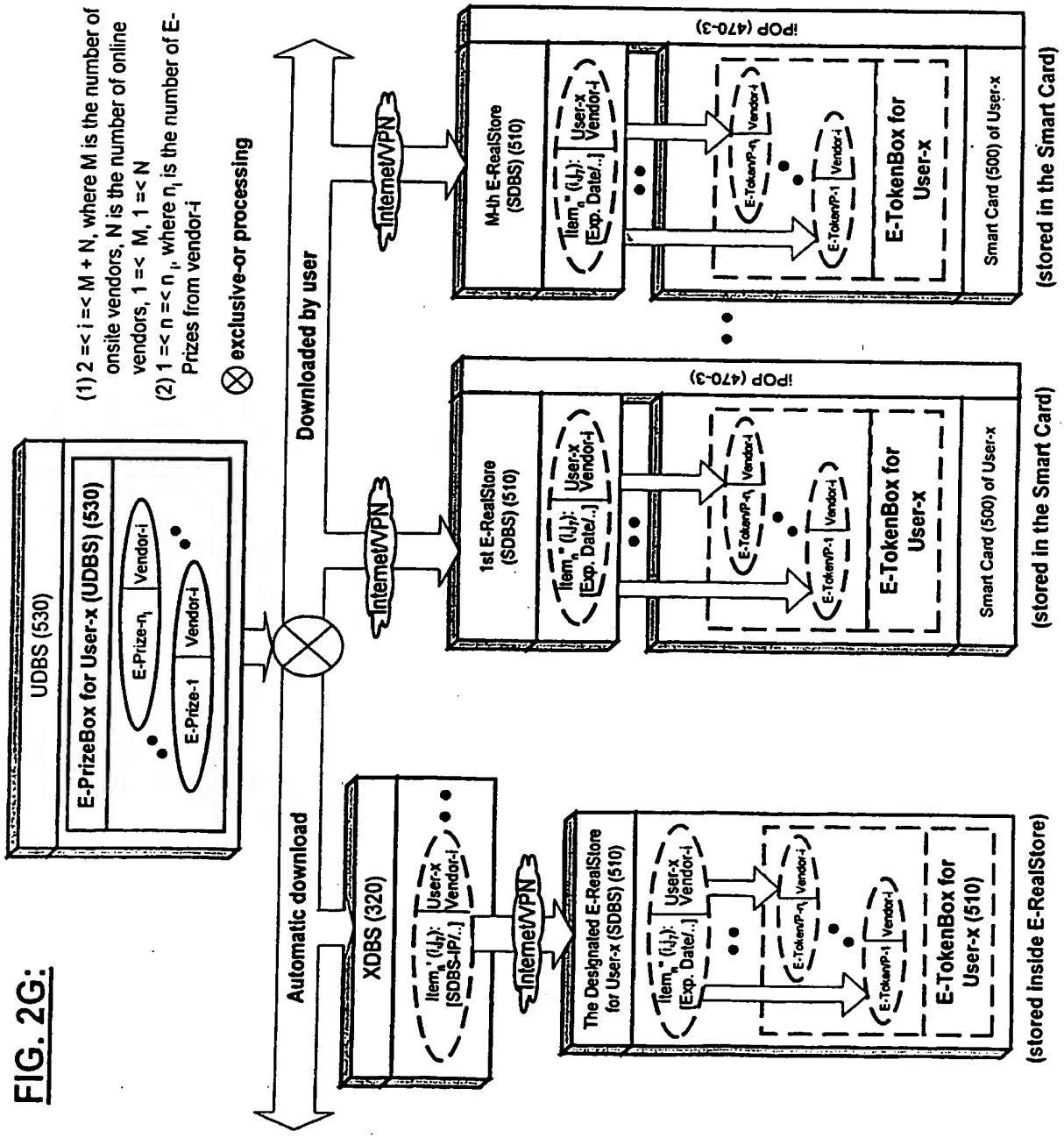
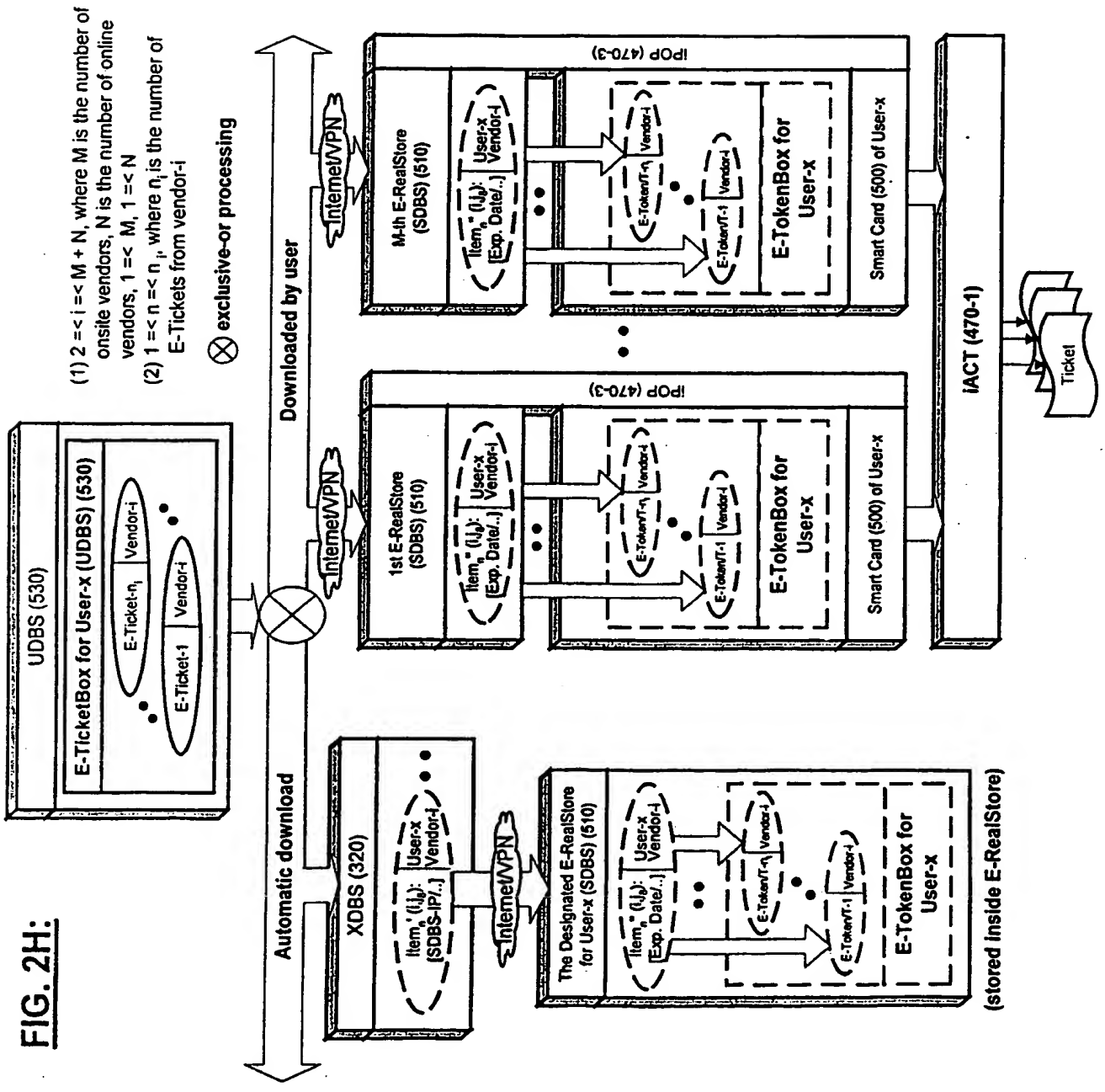
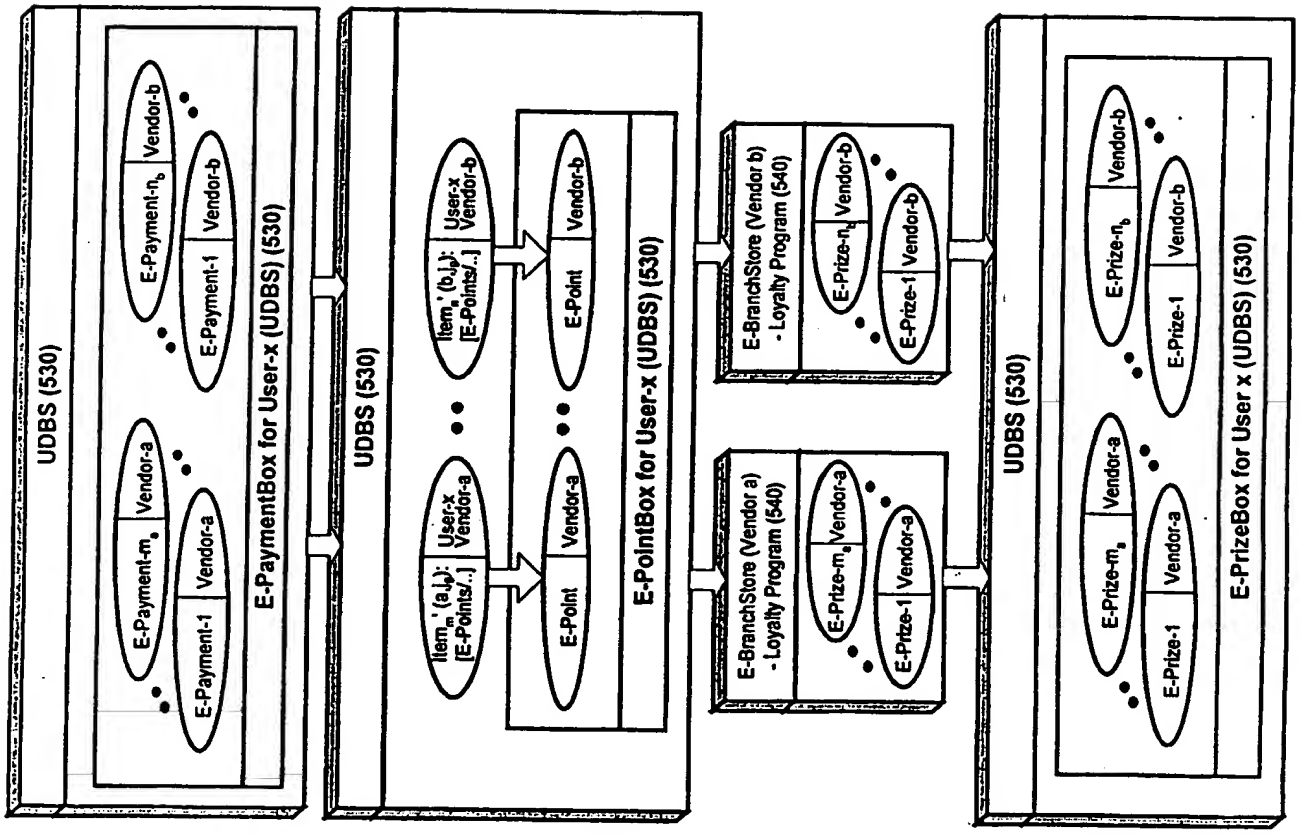

UDBS (530)
E-PrizeBox for User-x (UDBS) (530)
E-Prize-n1
Vendor-i
E-Prize-1
Vendor-i
(1) 2 =< i =< M + N, where M is the number of onsite vendors, N is the number of online vendors, 1 =< M, 1 =< N
(2) 1 =< n =< n i, where n i is the number of E-Prizes from vendor-i
⊗ exclusive-or processing
Downloaded by user
Automatic download
Internet/VPN
XDBS (320)
Item n (i,j): [SDBS-IP/..]
User-x Vendor-i
The Designated E-RealStore for User-x (SDBS) (510)
Item n (i,j): [Exp. Date/..]
E-TokenP-n1
E-TokenP-1
E-TokenBox for User-x (510)
(stored inside E-RealStore)
1st E-RealStore (SDBS) (510)
M-th E-RealStore (SDBS) (510)
iPOP (470-3)
E-TokenBox for User-x
Smart Card (500) of User-x
(stored in the Smart Card)
Note:
Method of Implementing the Preferred E-Prize E-Commerce Service using E-TokenBox
(for Smart Card User-x, Service j7)

FIG. 2H:



BNSDOCID: <WO___0122325A1_I_>

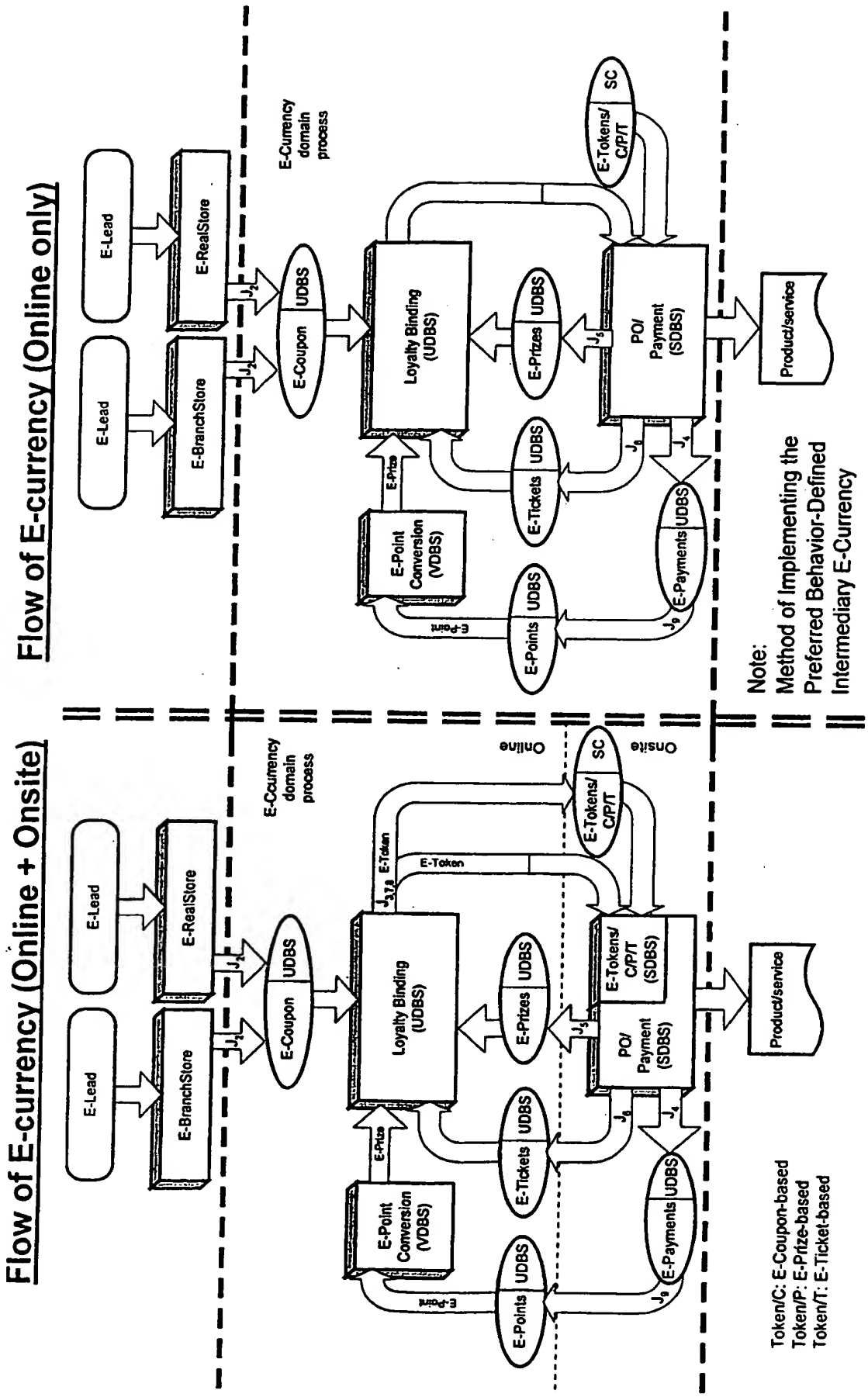
FIG. 2I:



Note:
Method of Implementing the Preferred E-Point E-Commerce Service using E-Payment and E-PrizeBoxes with Additional E-PointBox (for Smart Card User-x, Service j9)

3NSDOCID: <WO___0122325A1_I_>

FIG. 2J:



BNSDOCID: <WO___0122325A1_I_>

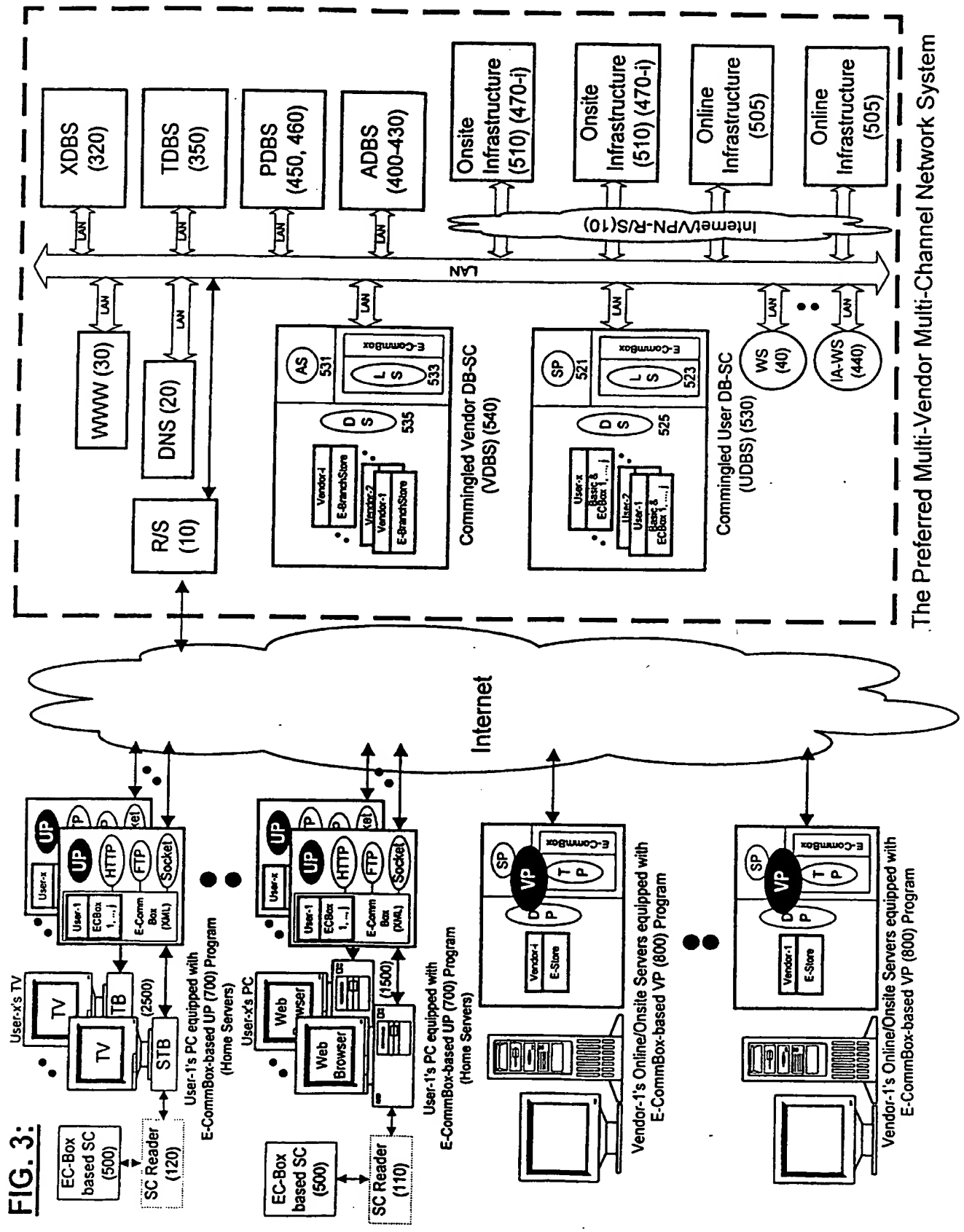

The Preferred Multi-Vendor Multi-Channel Network System
XDBS (320)
TDBS (350)
PDBS (450, 460)
ADBS (400-430)
Onsite Infrastructure (510) (470-i)
Onsite Infrastructure (510) (470-i)
Online Infrastructure (505)
Online Infrastructure (505)
Internet/VPN-R/S(10)
LAN
WWW (30)
DNS (20)
R/S (10)
Commingled Vendor DB-SC (VDBS) (540)
Commingled User DB-SC (UDBS) (530)
WS (40)
IA-WS (440)
Internet
User-x's TV
TV
STB
(2500)
EC-Box based SC (500)
SC Reader (120)
User-1's PC equipped with E-CommBox-based UP (700) Program (Home Servers)
User-x's PC
Web Browser
(1500)
EC-Box based SC (500)
SC Reader (110)
User-1's PC equipped with E-CommBox-based UP (700) Program (Home Servers)
Vendor-1's Online/Onsite Servers equipped with E-CommBox-based VP (800) Program
Vendor-1's Online/Onsite Servers equipped with E-CommBox-based VP (800) Program

FIG. 3:

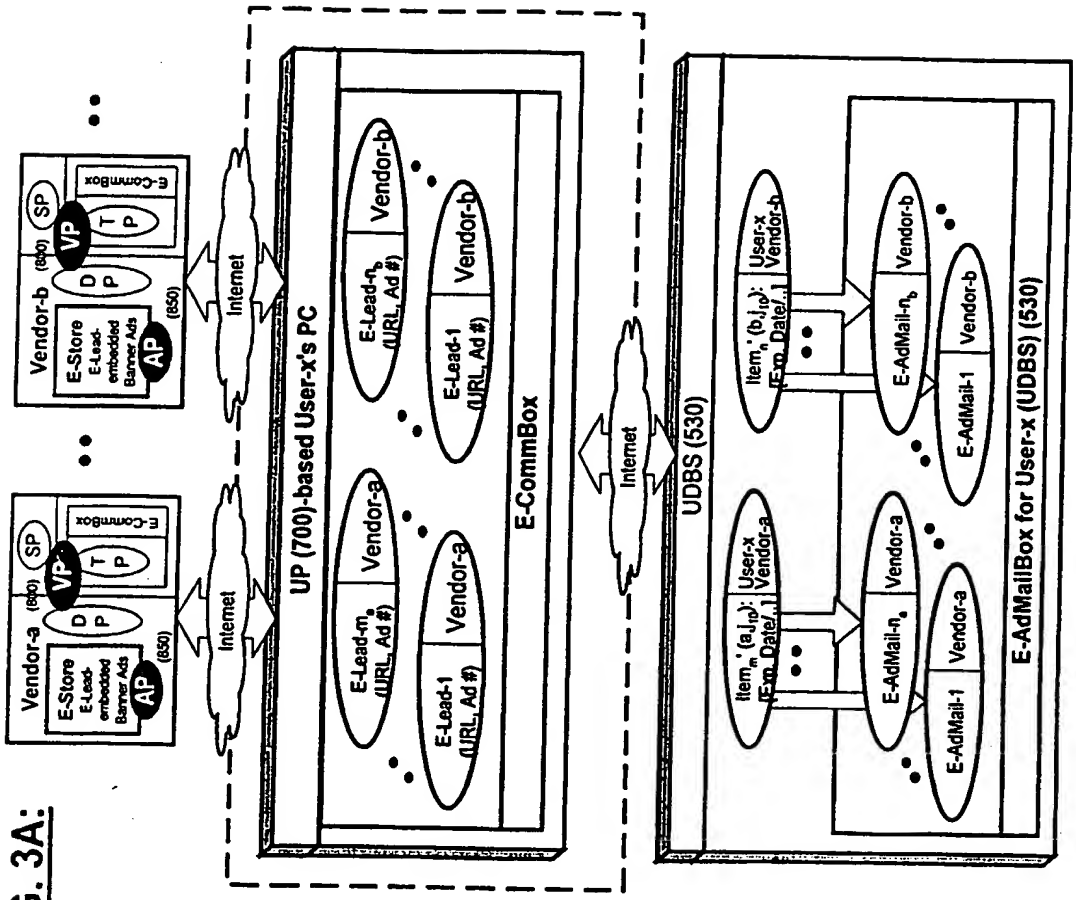


FIG. 3A:

BNSDOCID: <WO___0122325A1_I_>

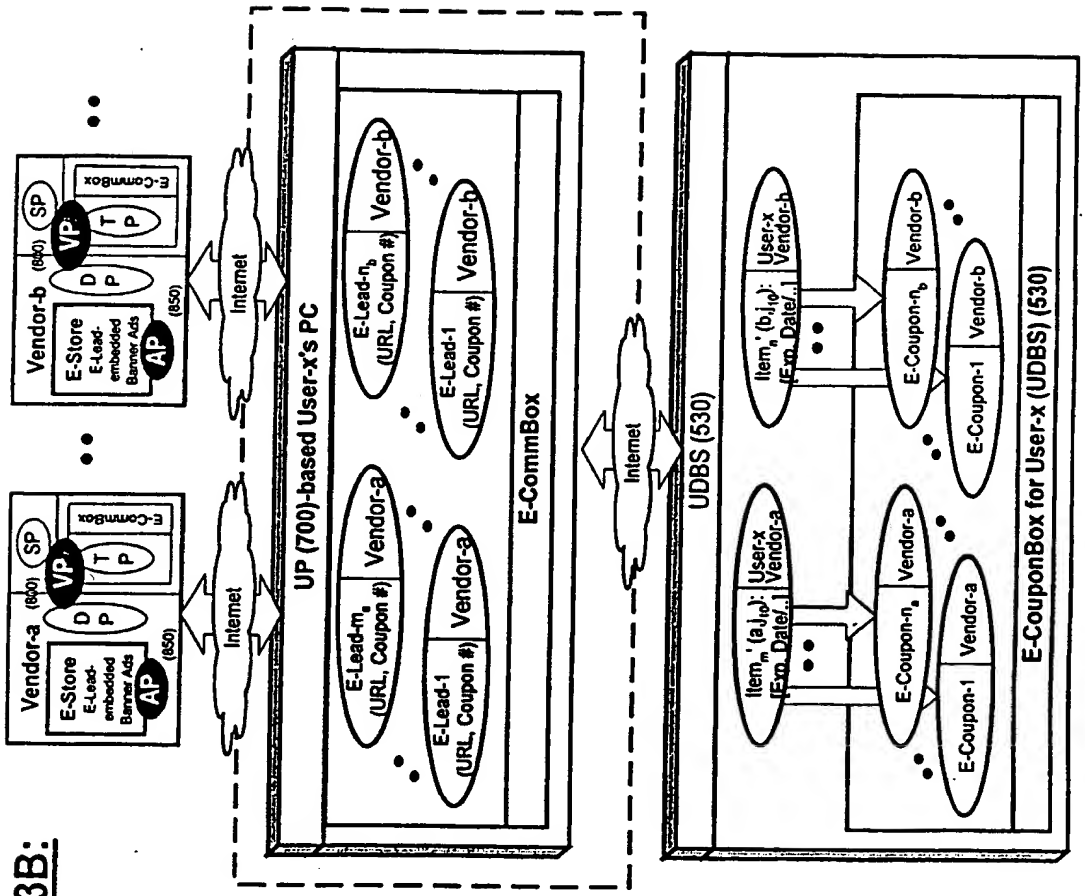
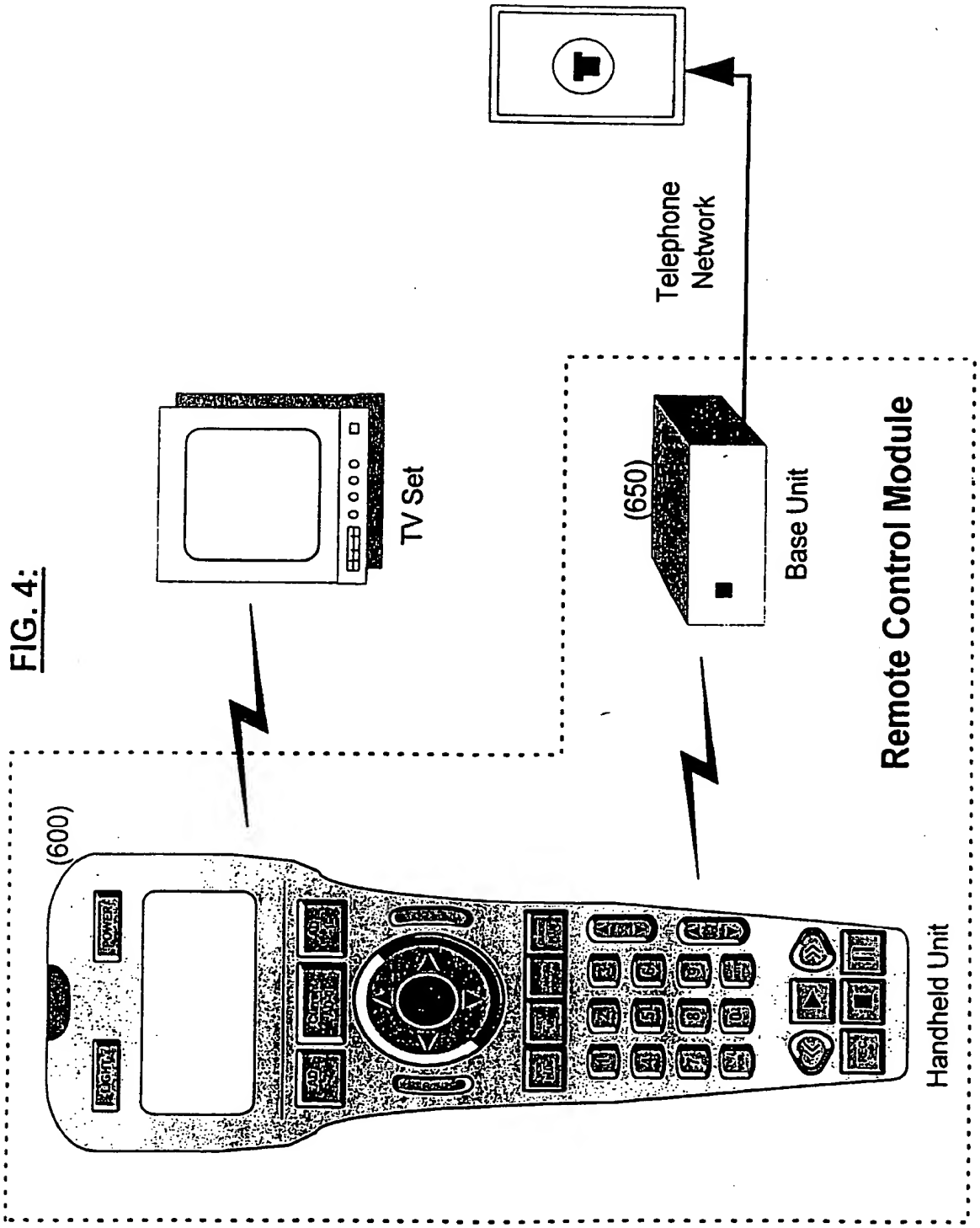


FIG. 3B:

BNSDOCID: <WO 0122325A1 I >

FIG. 4:



BNSDOCID: <WO___0122325A1_I_>

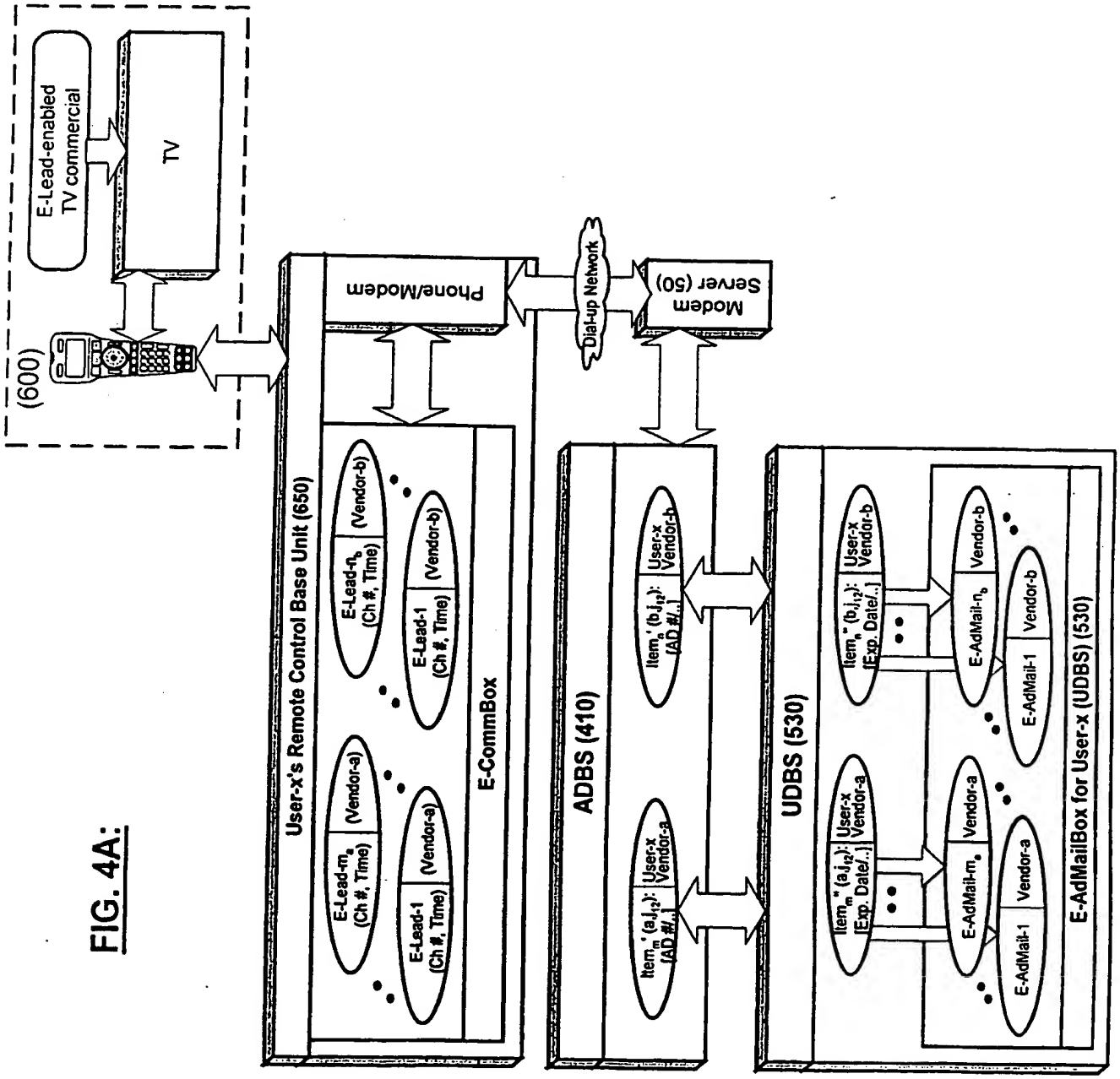

(600)
TV
E-Lead-enabled TV commercial
Phone/Modem
Dial-up Network
Modem Server (50)
User-x's Remote Control Base Unit (650)
E-CommBox
E-Lead-1 (Ch #, Time) (Vendor-a)
E-Lead-m$_a$ (Ch #, Time) (Vendor-a)
E-Lead-1 (Ch #, Time) (Vendor-b)
E-Lead-n$_b$ (Ch #, Time) (Vendor-b)
ADBS (410)
Item$_m$'(a,i$_{j2}$): (AD #,..) User-x Vendor-a
Item$_n$'(b,i$_{j2}$): (AD #,..) User-x Vendor-b
UDBS (530)
Item$_m$"(a,i$_{j2}$): [Exp. Date/..] User-x Vendor-a
Item$_n$"(b,i$_{j2}$): [Exp. Date/..] User-x Vendor-b
E-AdMailBox for User-x (UDBS) (530)
E-AdMail-1 Vendor-a
E-AdMail-m$_a$ Vendor-a
E-AdMail-1 Vendor-b
E-AdMail-n$_b$ Vendor-b

FIG. 4A:

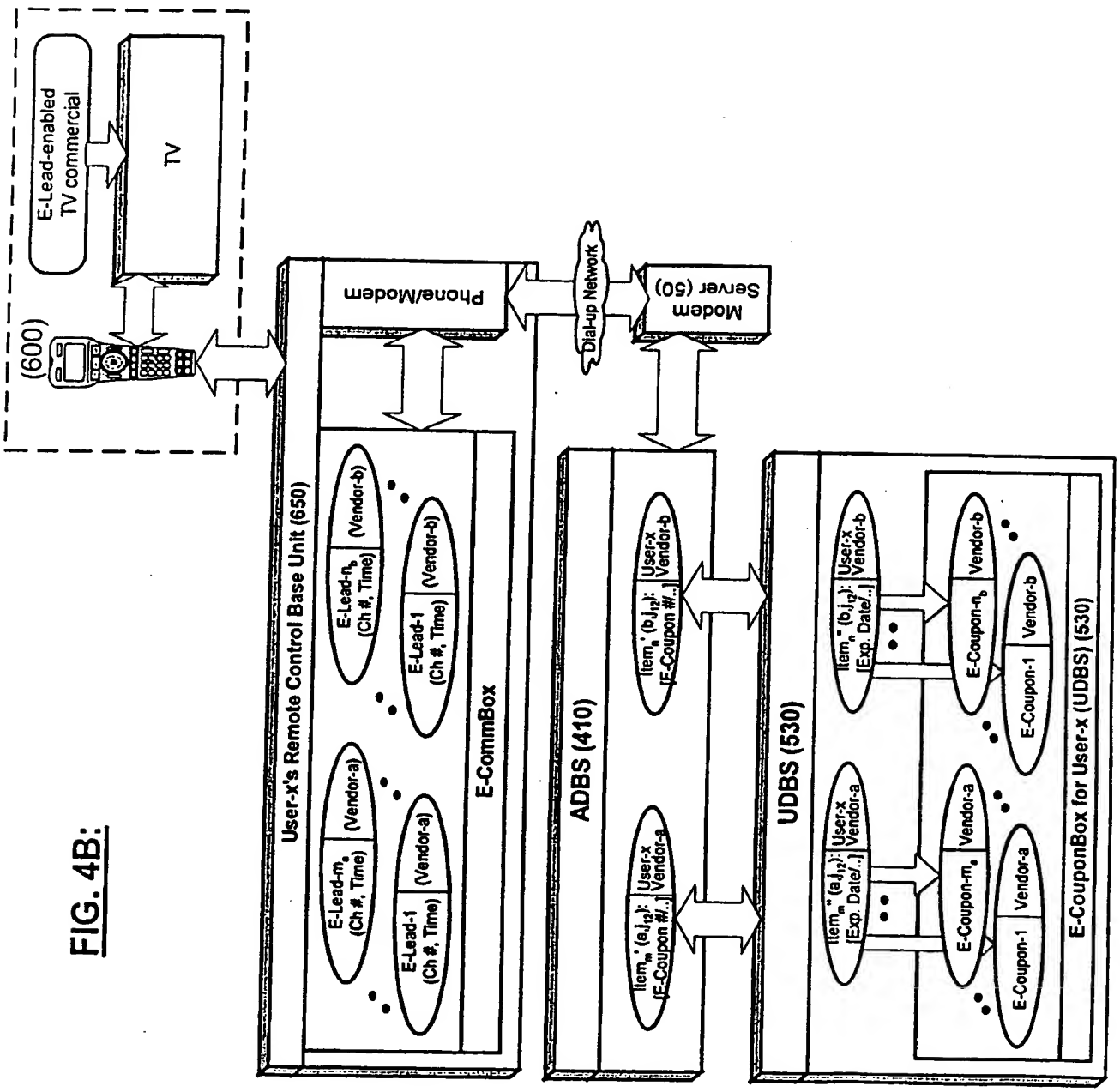


FIG. 4B:

3NSDOCID: <WO___0122325A1_I_>

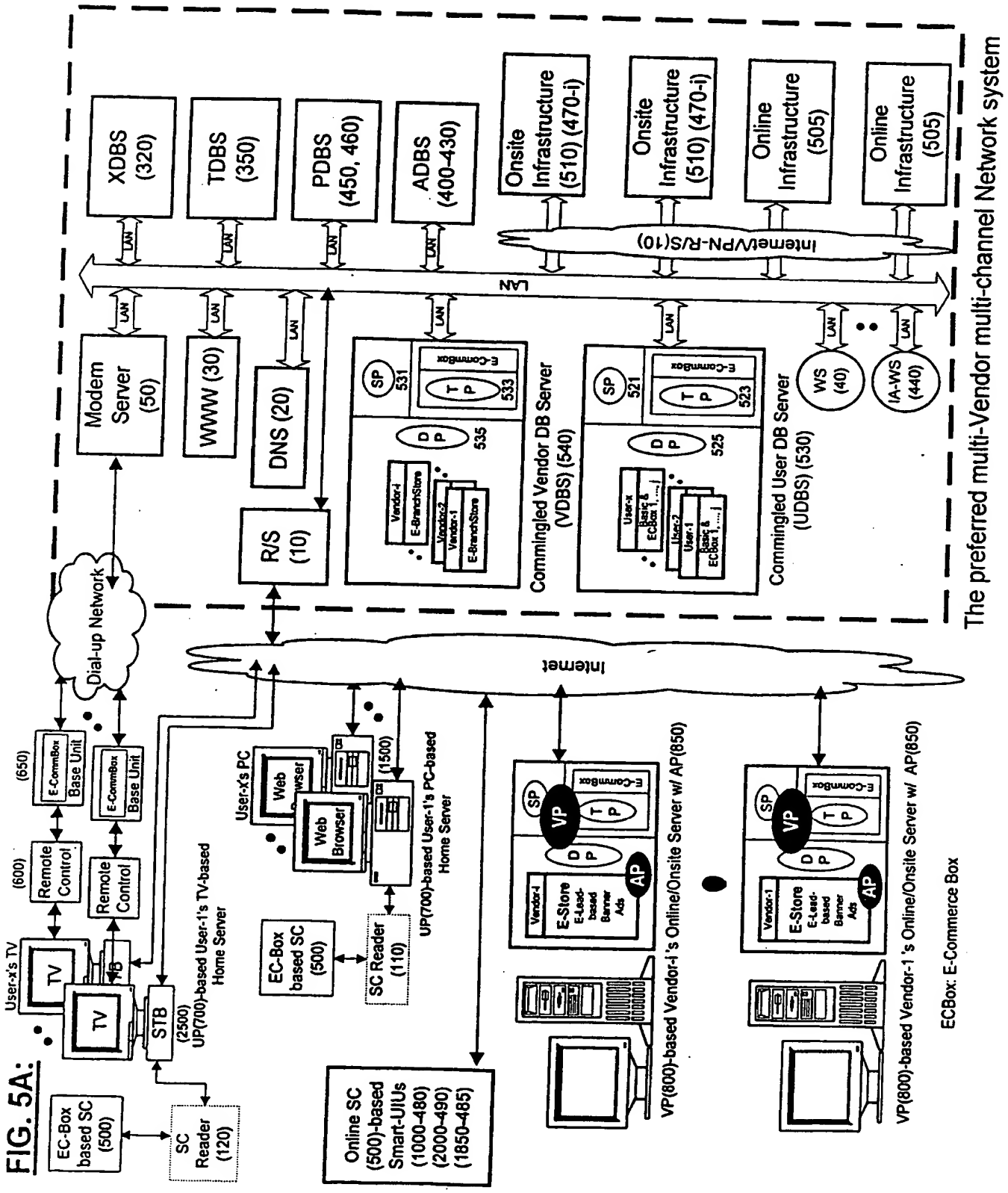


FIG. 5A:

ENSDOCID: <WO 0122325A1 I >

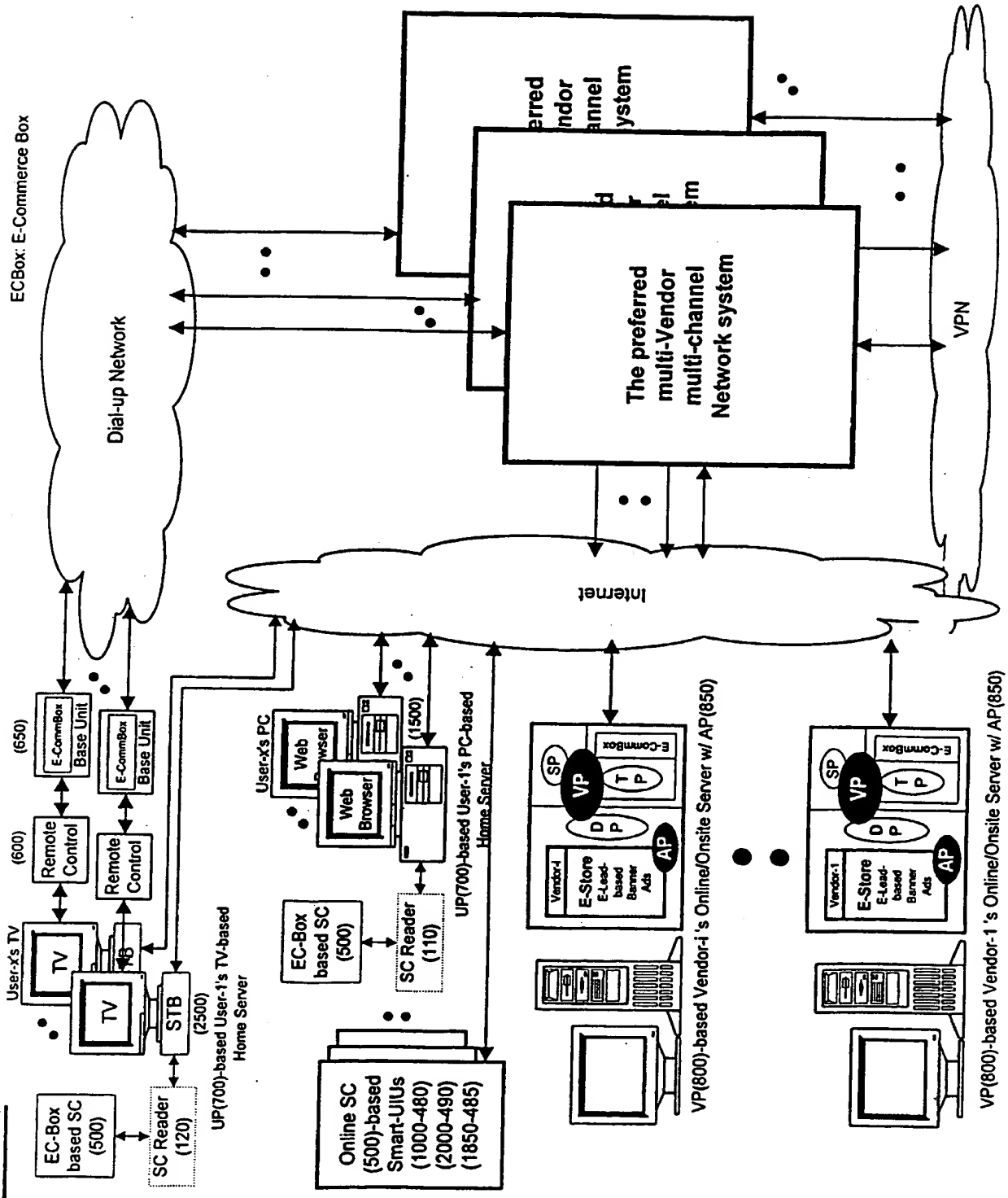

ECBox: E-Commerce Box
Dial-up Network
The preferred multi-Vendor multi-channel Network system
VPN
Internet
(650)
E-CommBox Base Unit
E-CommBox Base Unit
(600)
Remote Control
Remote Control
User-x's TV
TV
TV
STB
(2500)
UP(700)-based User-1's TV-based Home Server
EC-Box based SC (500)
SC Reader (120)
User-x's PC
Web Browser
Web Browser
(1500)
EC-Box based SC (500)
SC Reader (110)
UP(700)-based User-1's PC-based Home Server
Online SC (500)-based Smart-UIUs (1000-480) (2000-490) (1850-485)
E-CommBox
SP
VP
TP
DP
AP
Vendor-i
E-Store E-Lead-based Banner Ads
VP(800)-based Vendor-i 's Online/Onsite Server w/ AP(850)
Vendor-1
VP(800)-based Vendor-1 's Online/Onsite Server w/ AP(850)

FIG. 5B:

FIG. 6A: (8 TeamProcessors, 4 TeamServers, 2 TeamPanels, 2 TeamChassis)

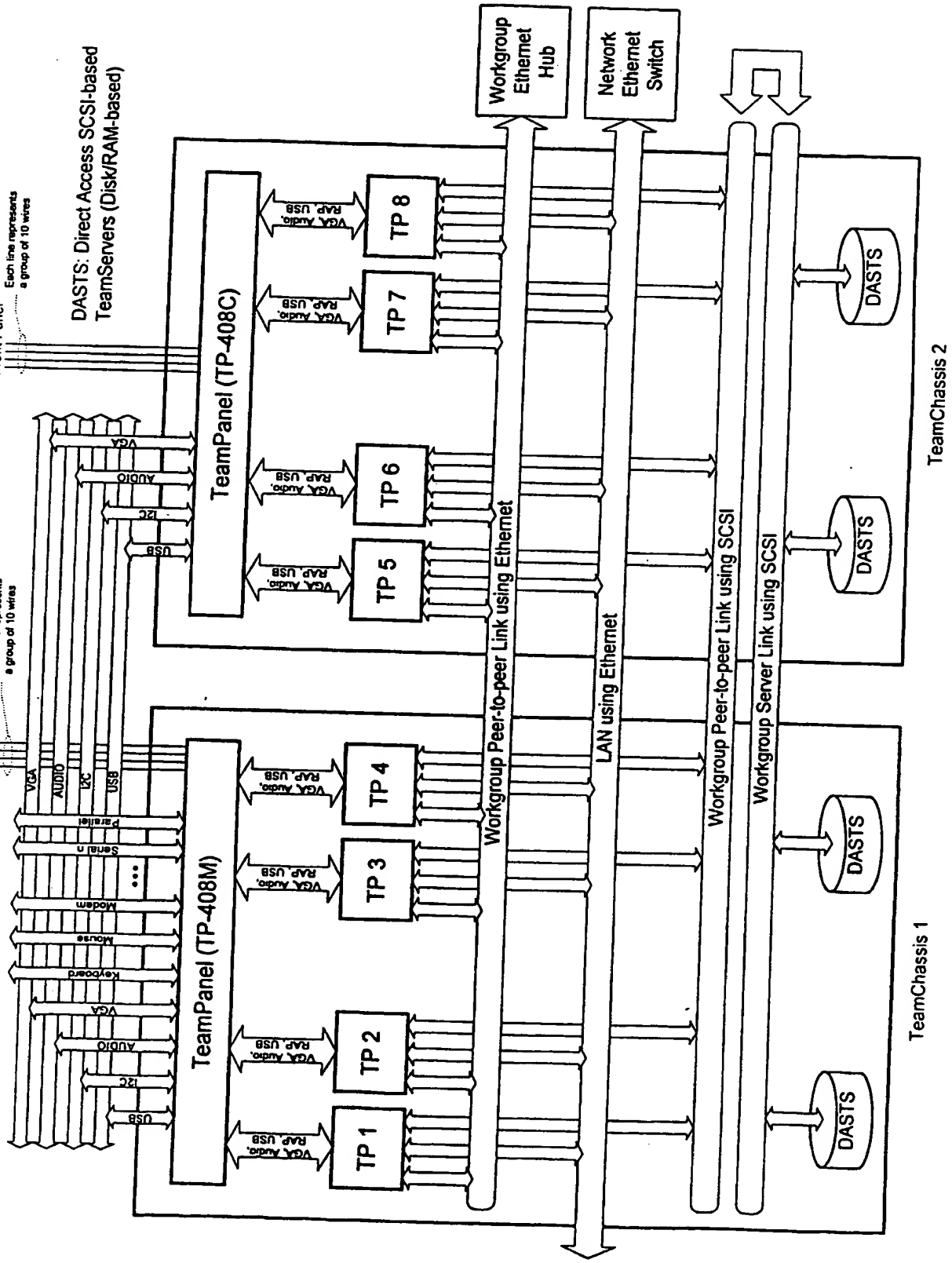


FIG. 6B:

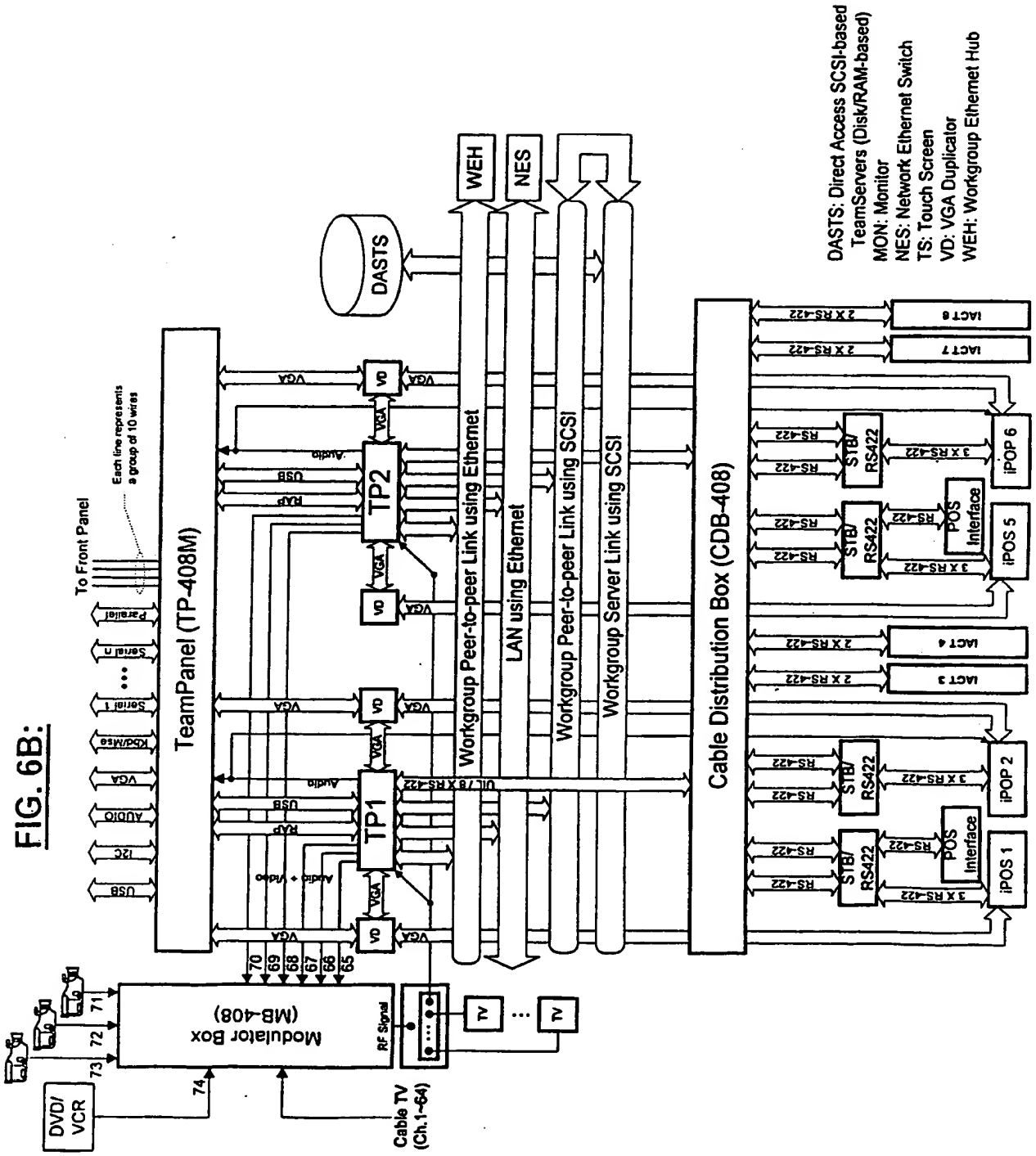
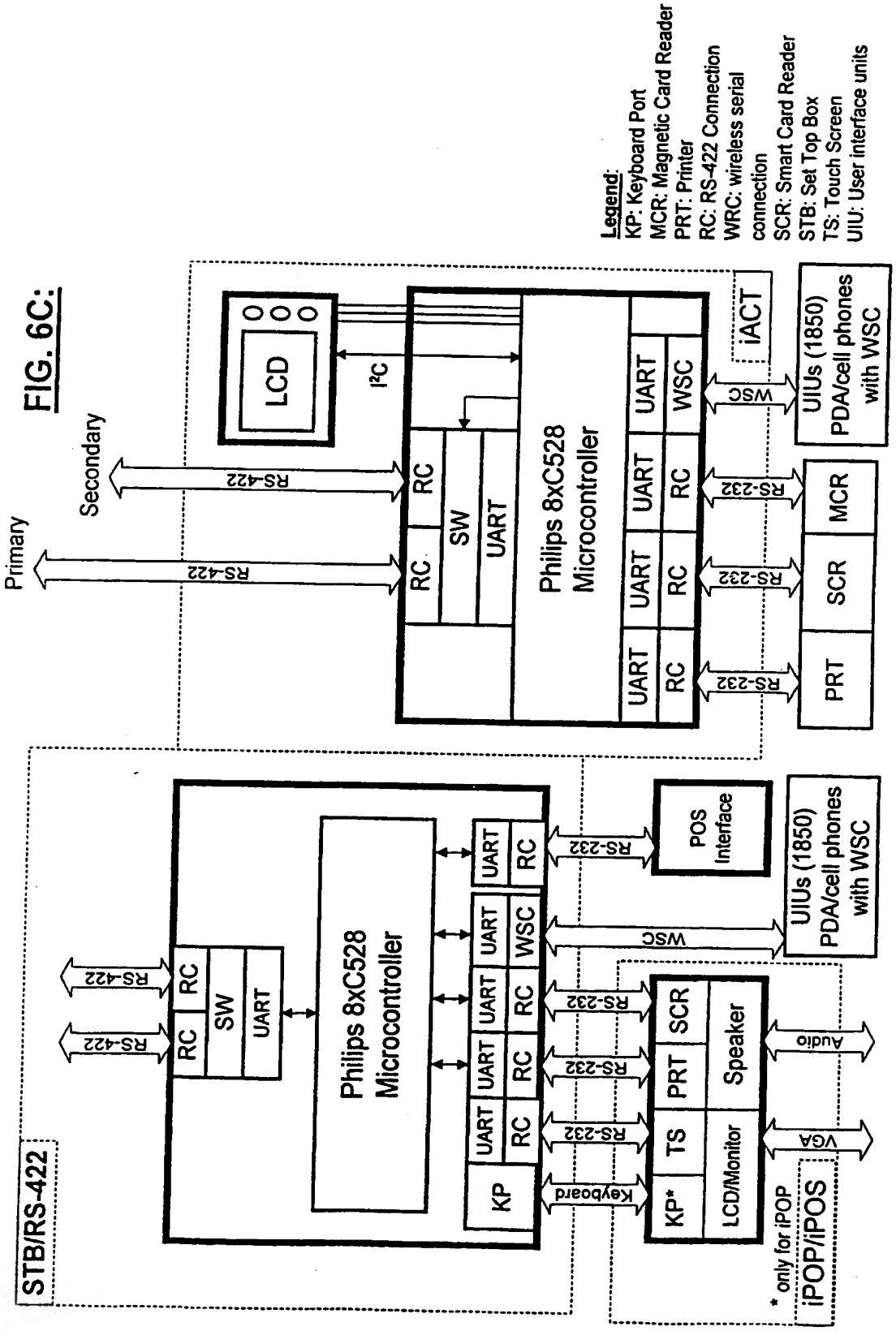

DASTS: Direct Access SCSI-based TeamServers (Disk/RAM-based)
MON: Monitor
NES: Network Ethernet Switch
TS: Touch Screen
VD: VGA Duplicator
WEH: Workgroup Ethernet Hub
DASTS
WEH
NES
Workgroup Peer-to-peer Link using Ethernet
LAN using Ethernet
Workgroup Peer-to-peer Link using SCSI
Workgroup Server Link using SCSI
Cable Distribution Box (CDB-408)
TeamPanel (TP-408M)
To Front Panel
Each line represents a group of 10 wires
TP1
TP2
VD
VGA
Audio
USB
RAP
Modulator Box (MB-408)
RF Signal
TV
DVD/ VCR
Cable TV (Ch.1-64)
STB/ RS422
POS Interface
iPOS 1
iPOS 2
iPOS 5
iPOS 6
iACT 3
iACT 4
iACT 7
iACT 8

FIG. 6C:



NSDOCID: <WO___0122325A1_I_>

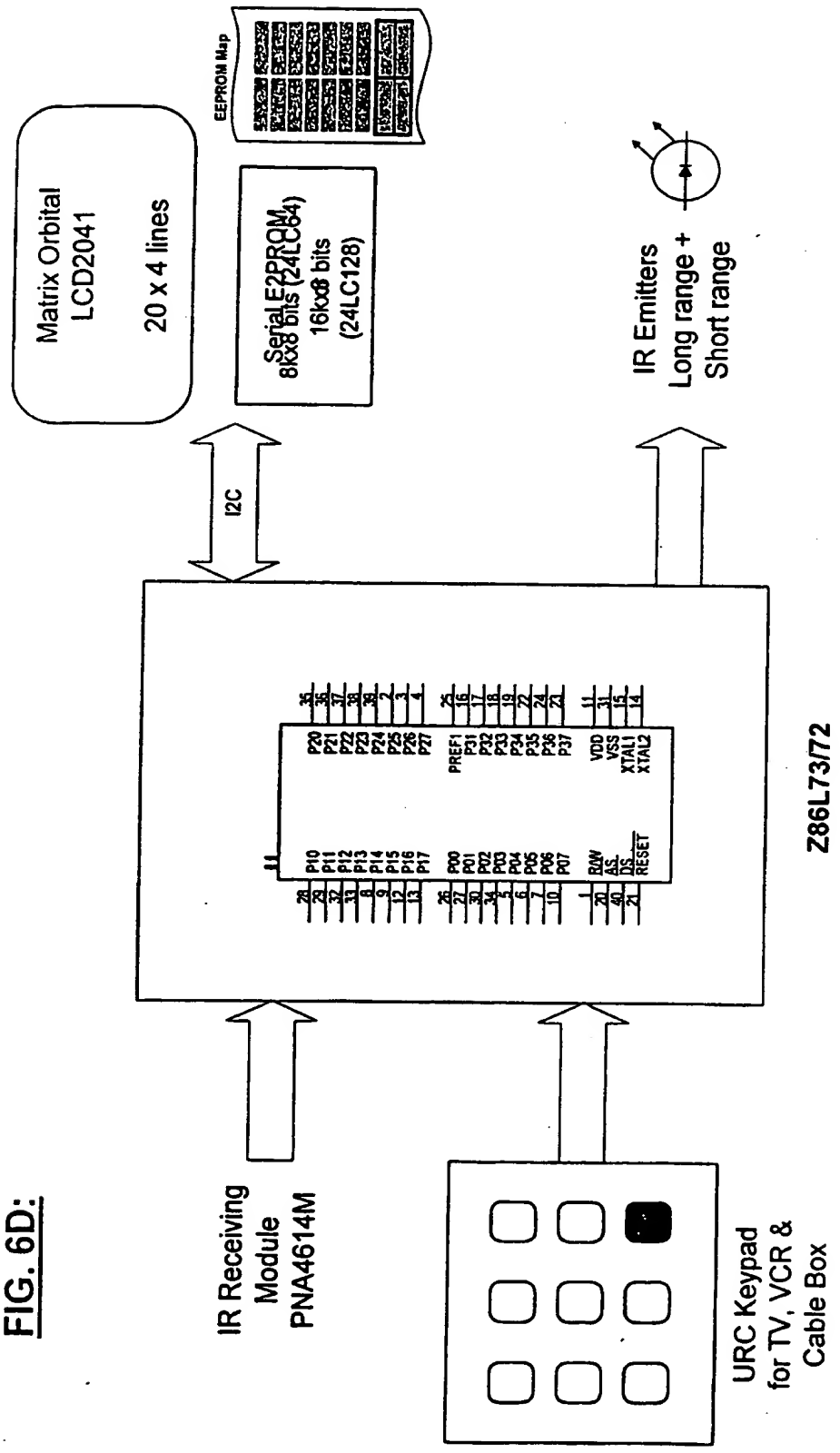


FIG. 6D:

BNSDOCID: <WO___0122325A1_1_>

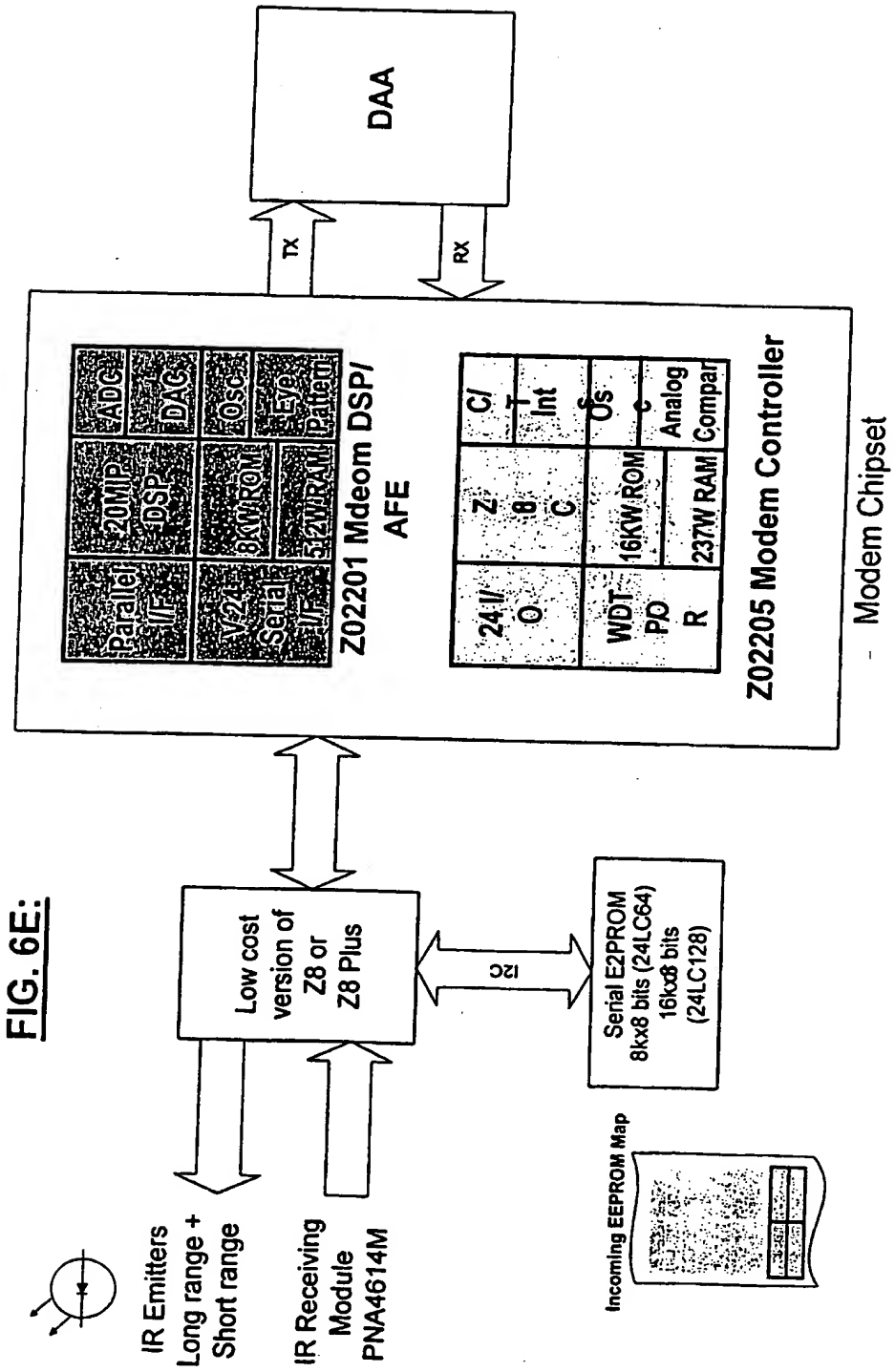
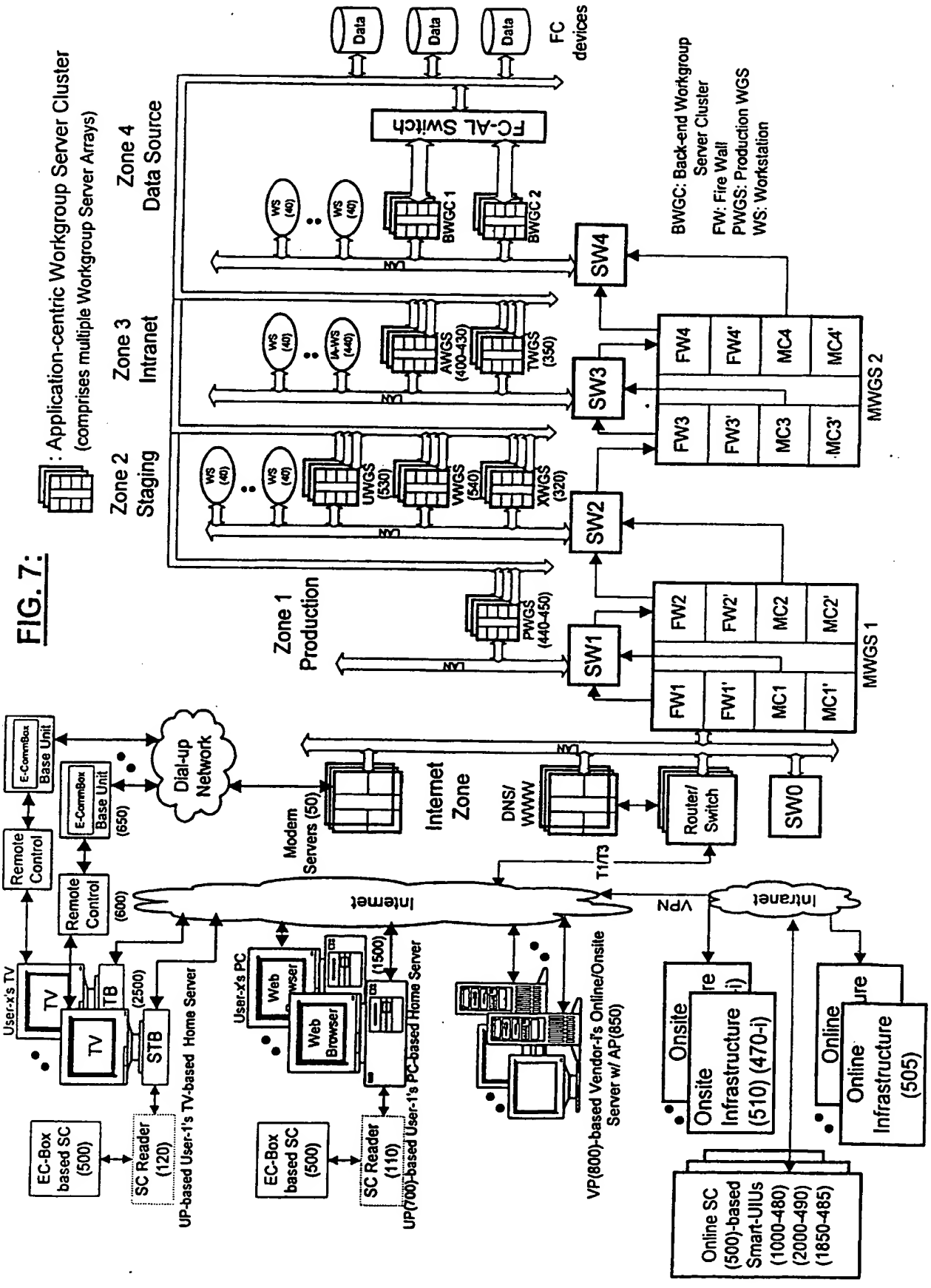

DAA
TX
RX
ADC
DAC
20MIPS DSP
OSC
Parallel I/F
8KW ROM
V.24 Serial I/F
512W RAM
Z02201 Mdeom DSP/ AFE
C/T Int
Z8 C
16KW ROM
237W RAM
Analog Compar
24 I/O
WDT PD R
Z02205 Modem Controller
Modem Chipset
Low cost version of Z8 or Z8 Plus
I2C
Serial E2PROM 8kx8 bits (24LC64) 16kx8 bits (24LC128)
Incoming EEPROM Map
IR Emitters Long range + Short range
IR Receiving Module PNA4614M

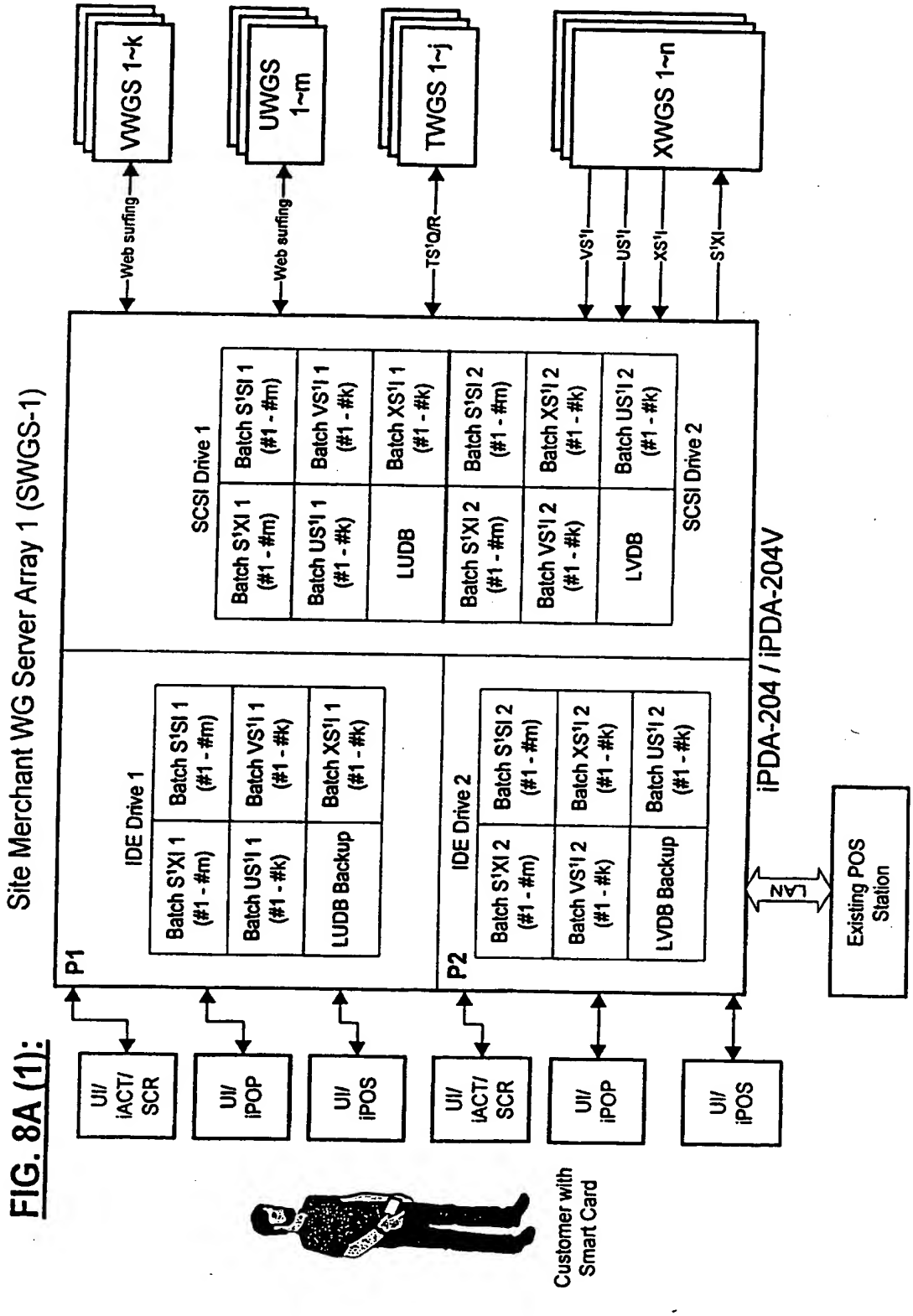
FIG. 6E:

FIG. 7:



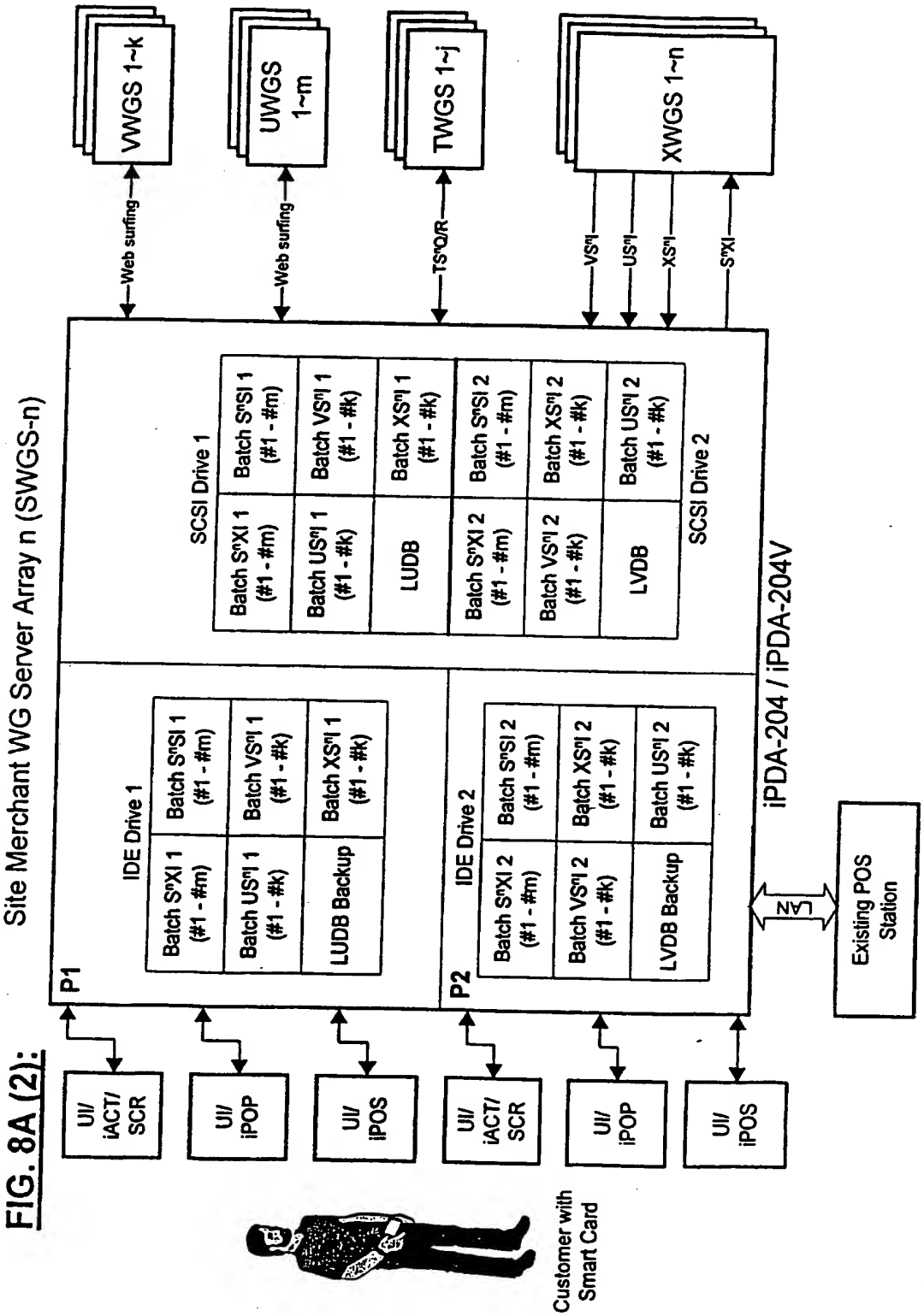
BNSDOCID: <WO___0122325A1_I_>

FIG. 8A (1):



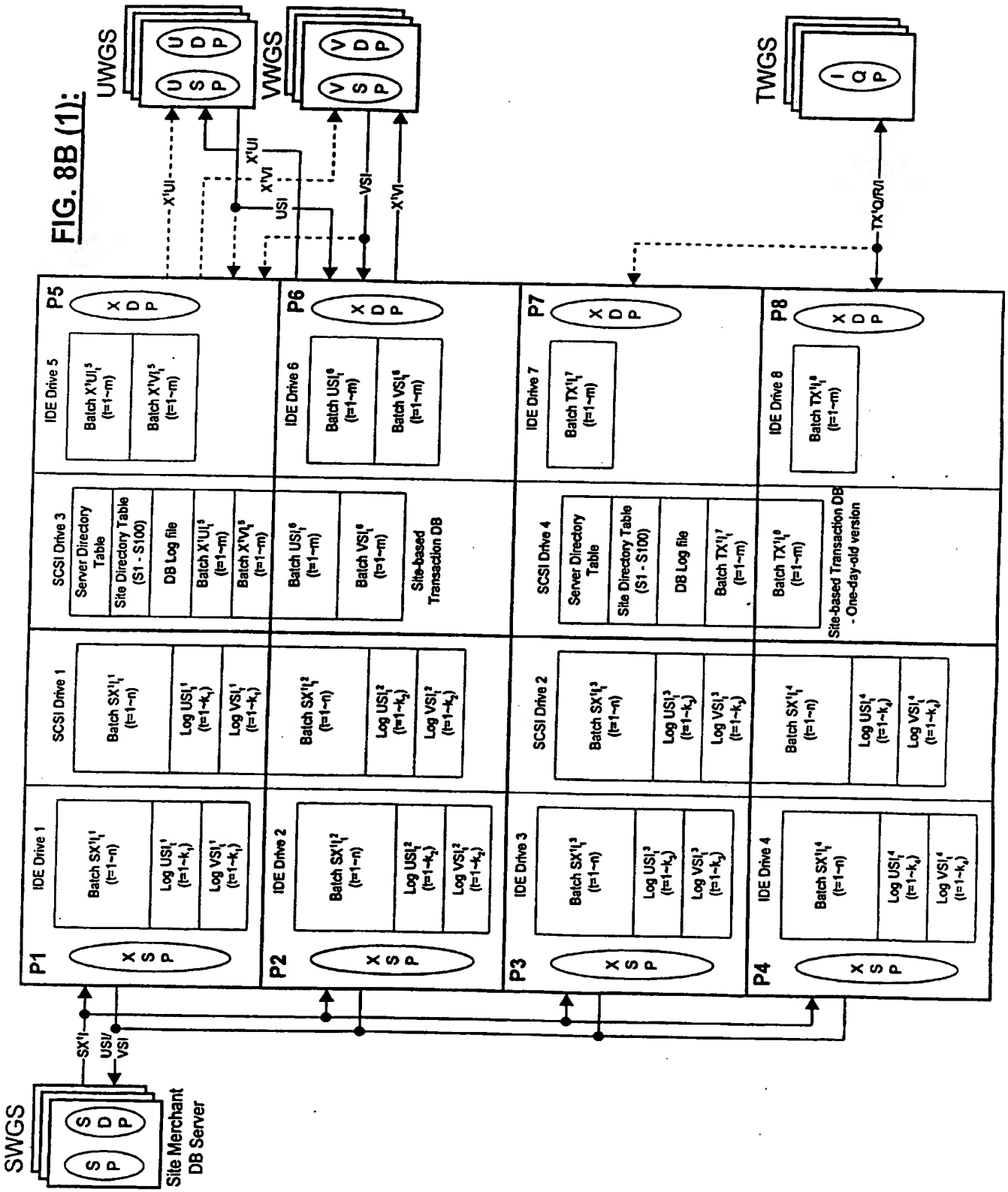
INSDOCID: <WO___0122325A1_I_>

FIG. 8A (2):



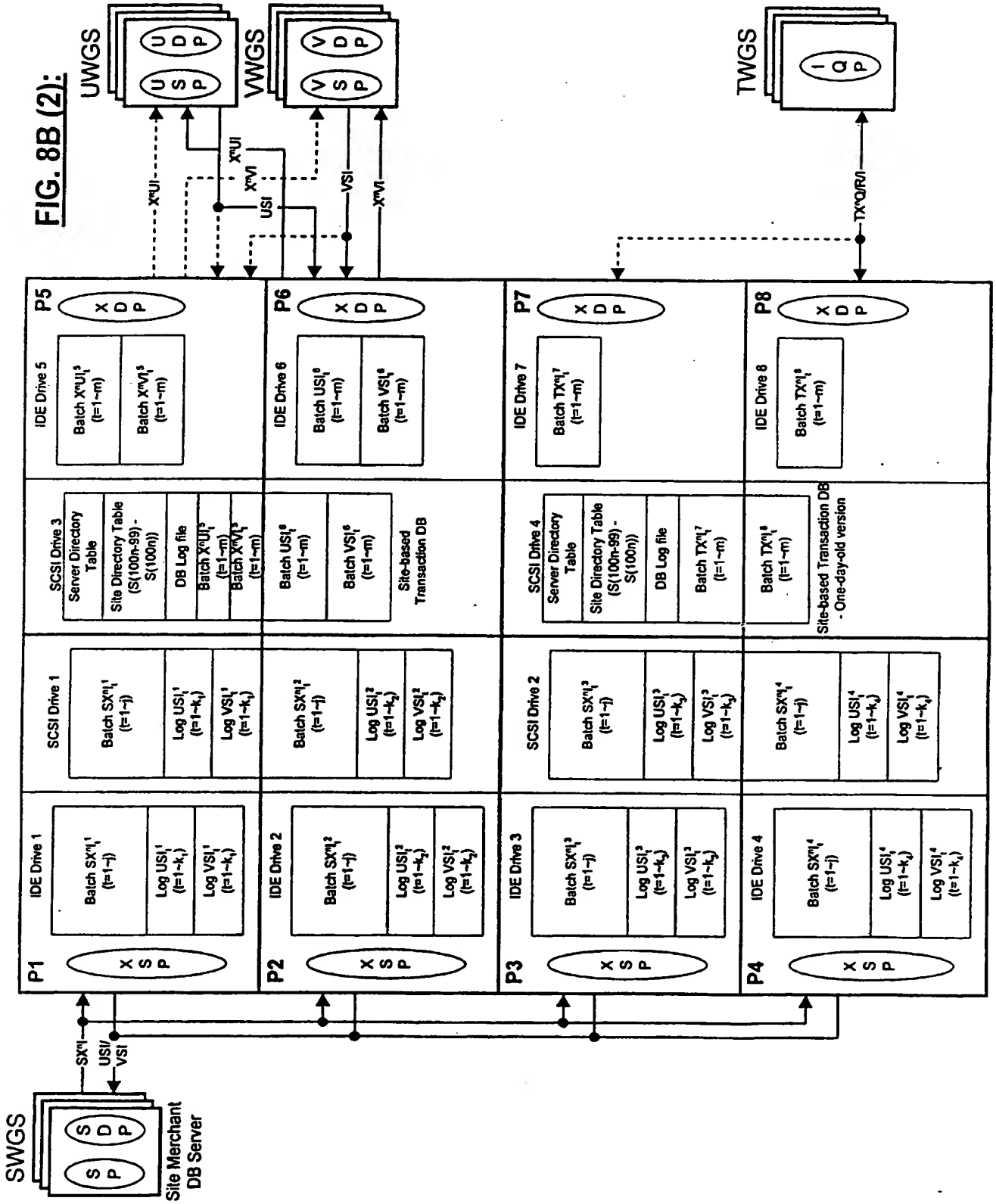
BNSDOCID: <WO 0122325A1 | 2

FIG. 8B (1):



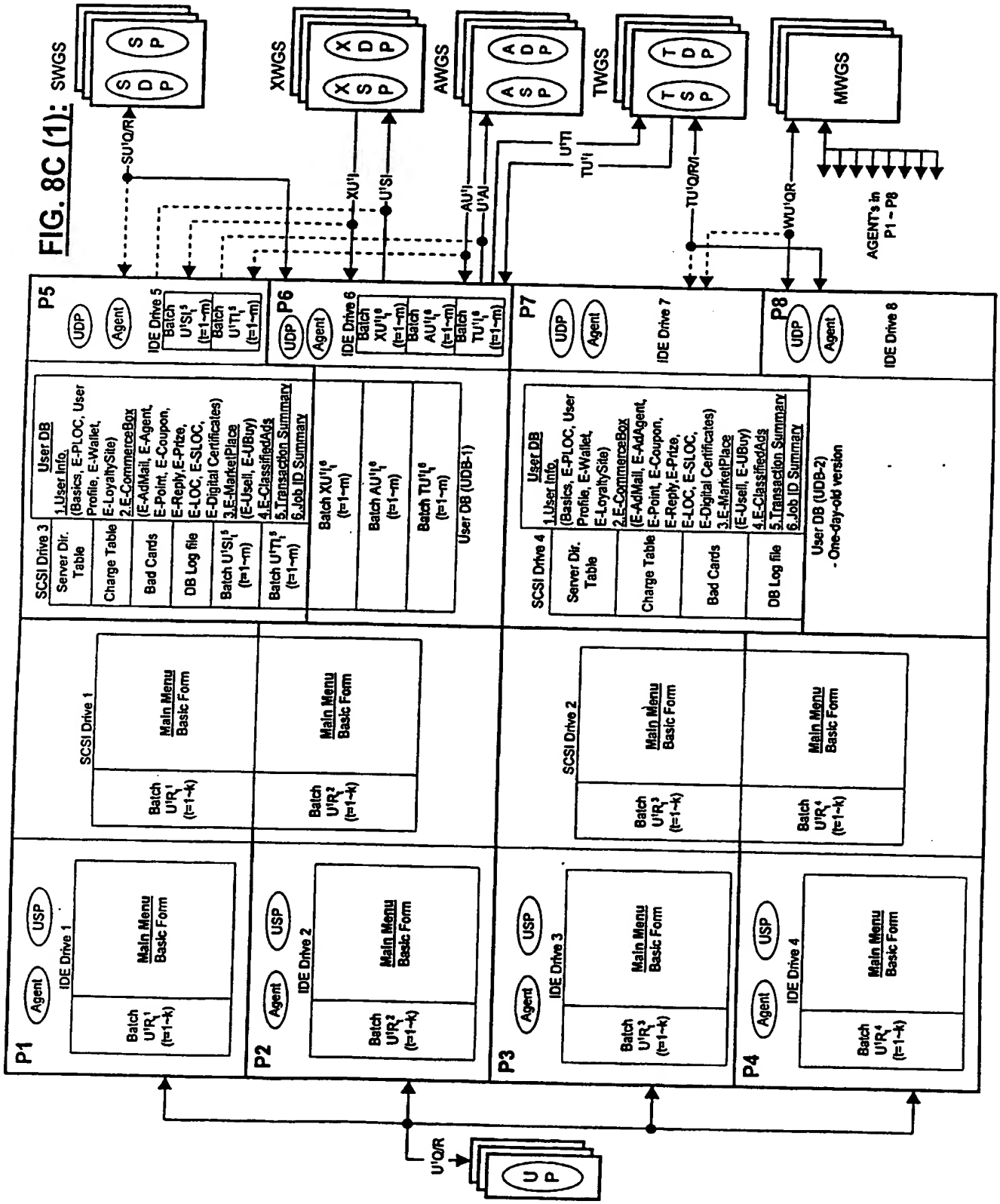
NSDOCID: <WO___0122325A1_I_>

FIG. 8B (2):



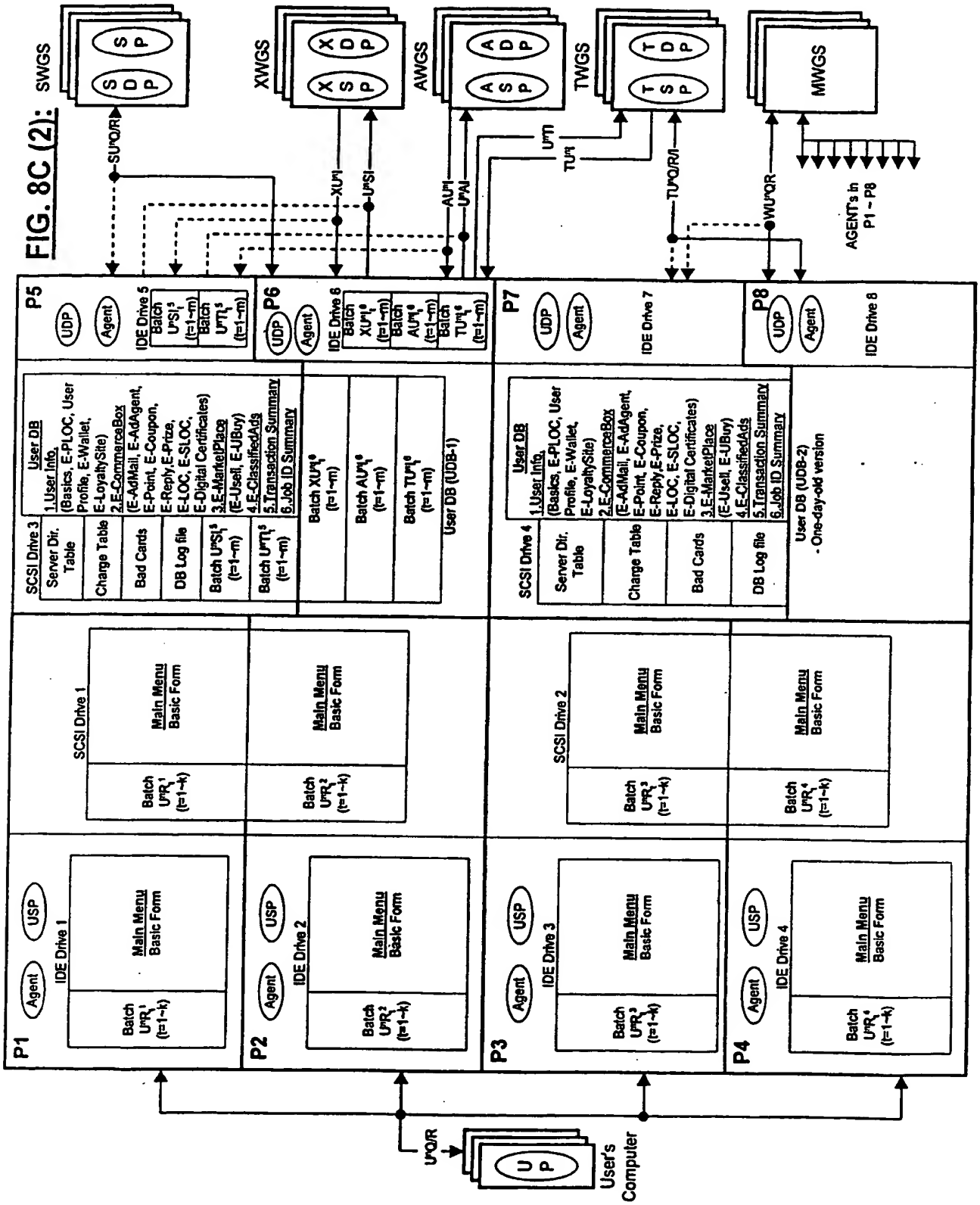
BNSDOCID: <WO___0122325A1_I_>

FIG. 8C (1):



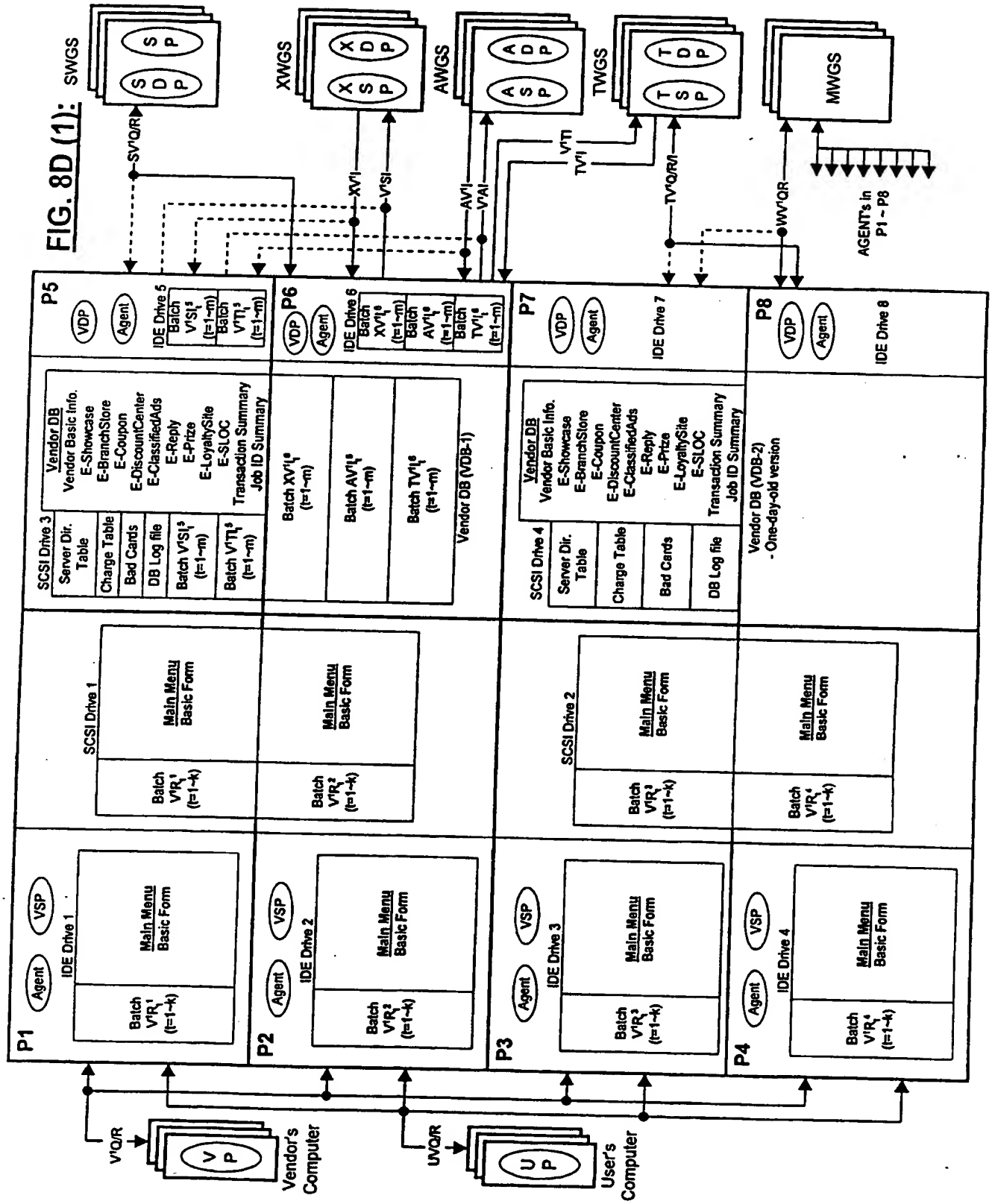
INSDOCID: <WO 0122325A1 I >

FIG. 8C (2):



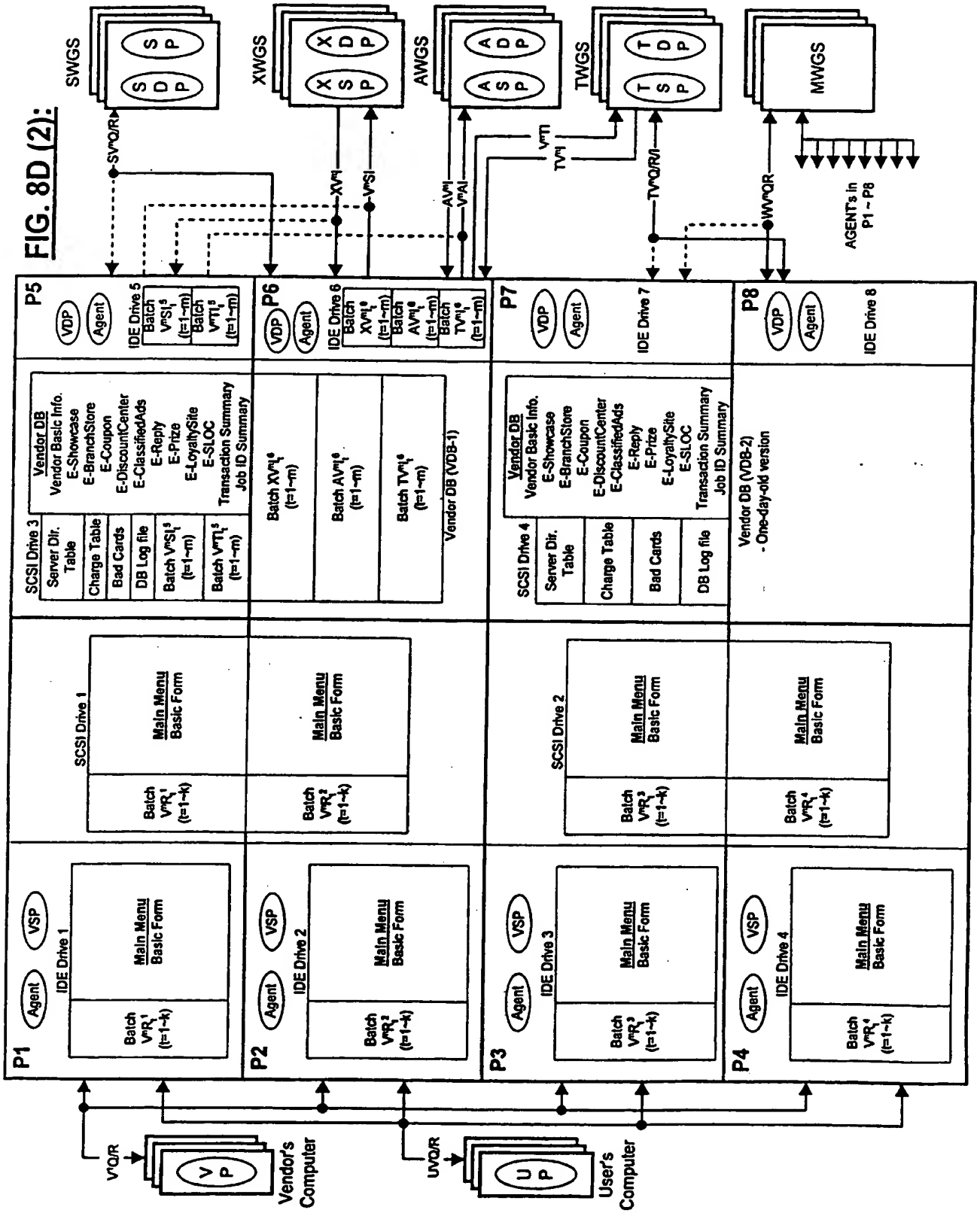
BNSDOCID: <WO_. 0122325A1_I_>

FIG. 8D (1):



INSDOCID: <WO___0122325A1_I_>

FIG. 8D (2):



BNSDOCID: <WO 0122325A1 I >

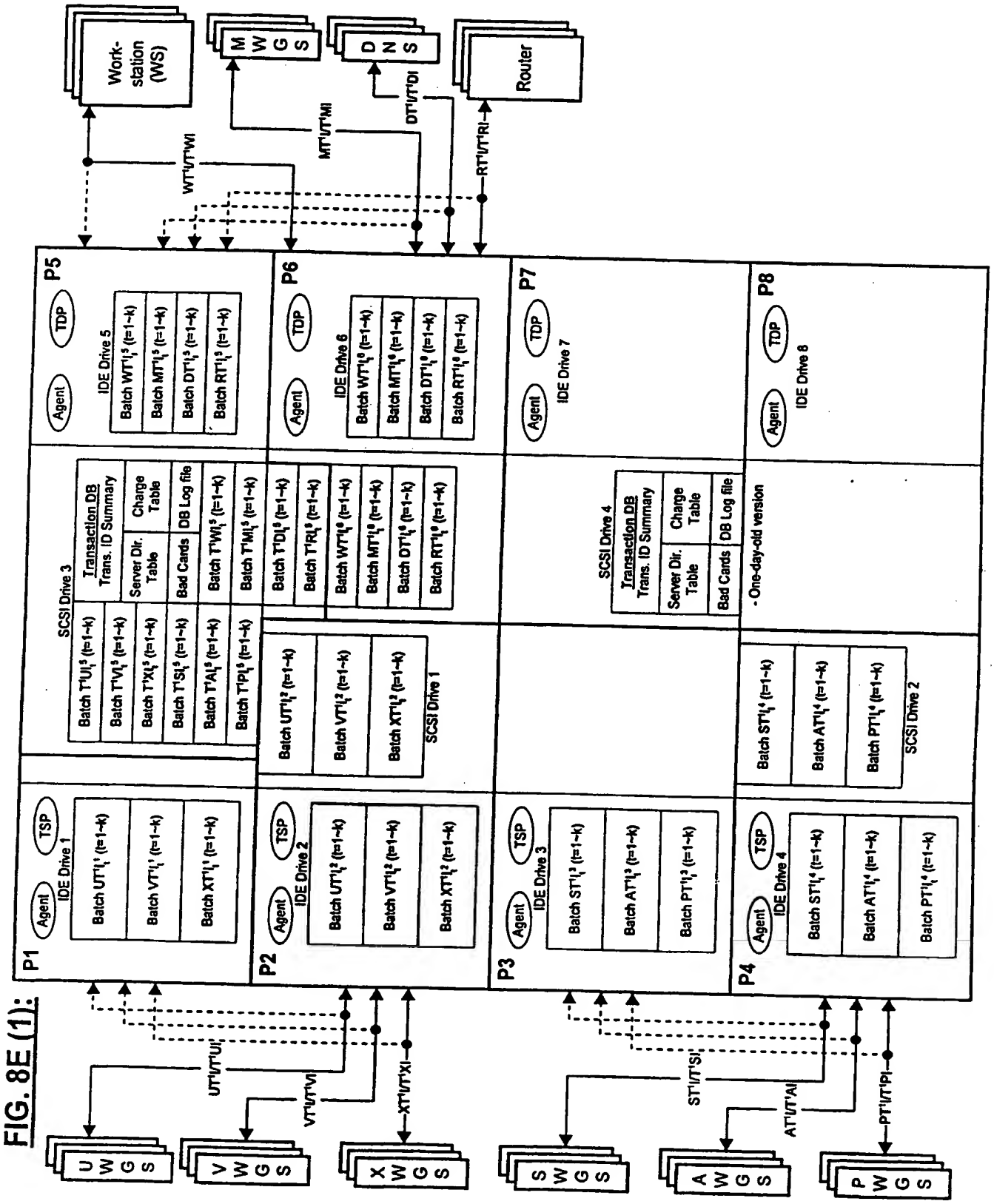

Work-station (WS)
M W G S
D N S
Router
P1
P2
P3
P4
P5
P6
P7
P8
Agent
TSP
TDP
IDE Drive 1
IDE Drive 2
IDE Drive 3
IDE Drive 4
IDE Drive 5
IDE Drive 6
IDE Drive 7
IDE Drive 8
SCSI Drive 1
SCSI Drive 2
SCSI Drive 3
SCSI Drive 4
Transaction DB
Trans. ID Summary
Server Dir. Table
Bad Cards
Charge Table
DB Log file
- One-day-old version
U W G S
V W G S
X W G S
S W G S
A W G S
P W G S

FIG. 8E (1):

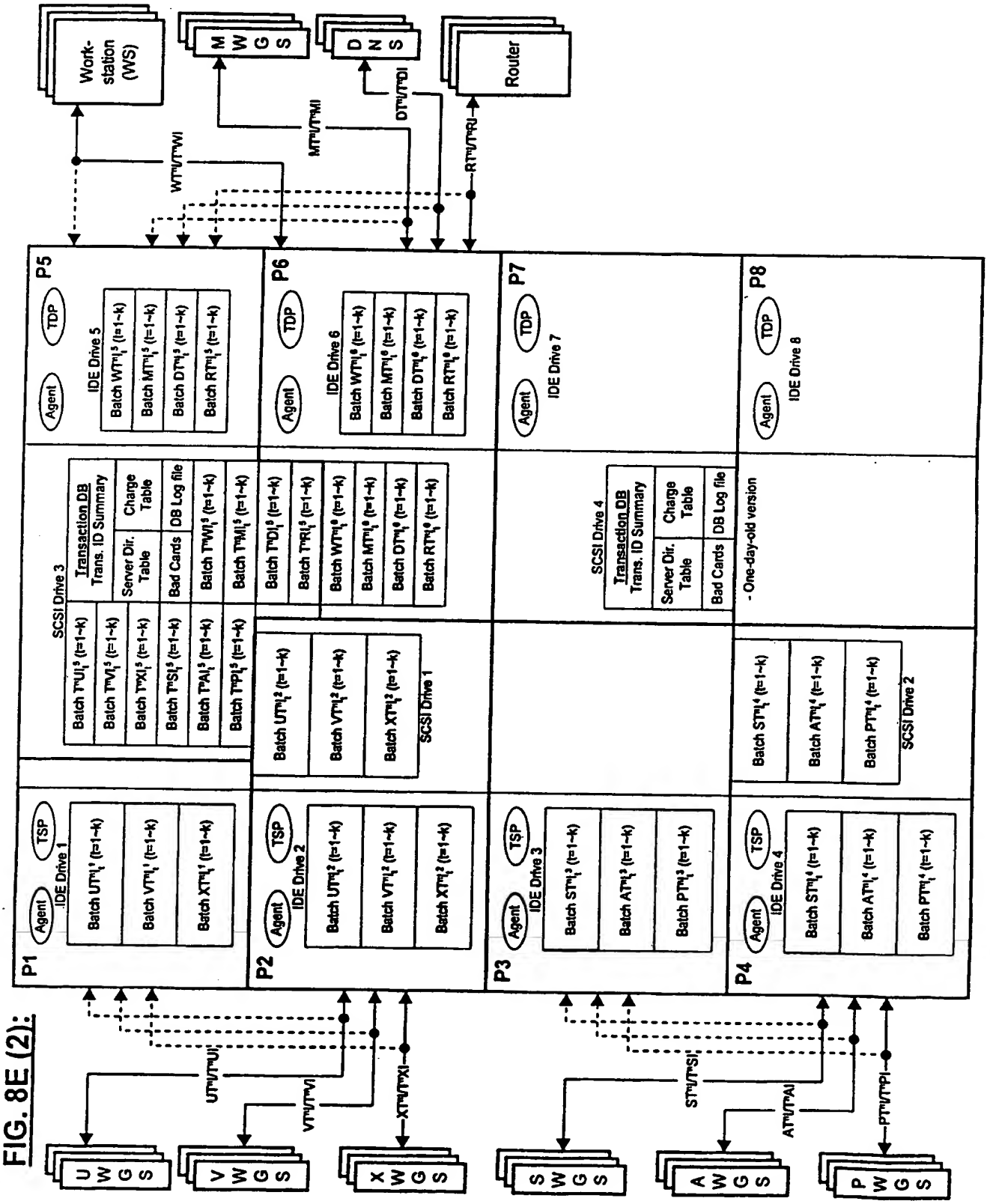
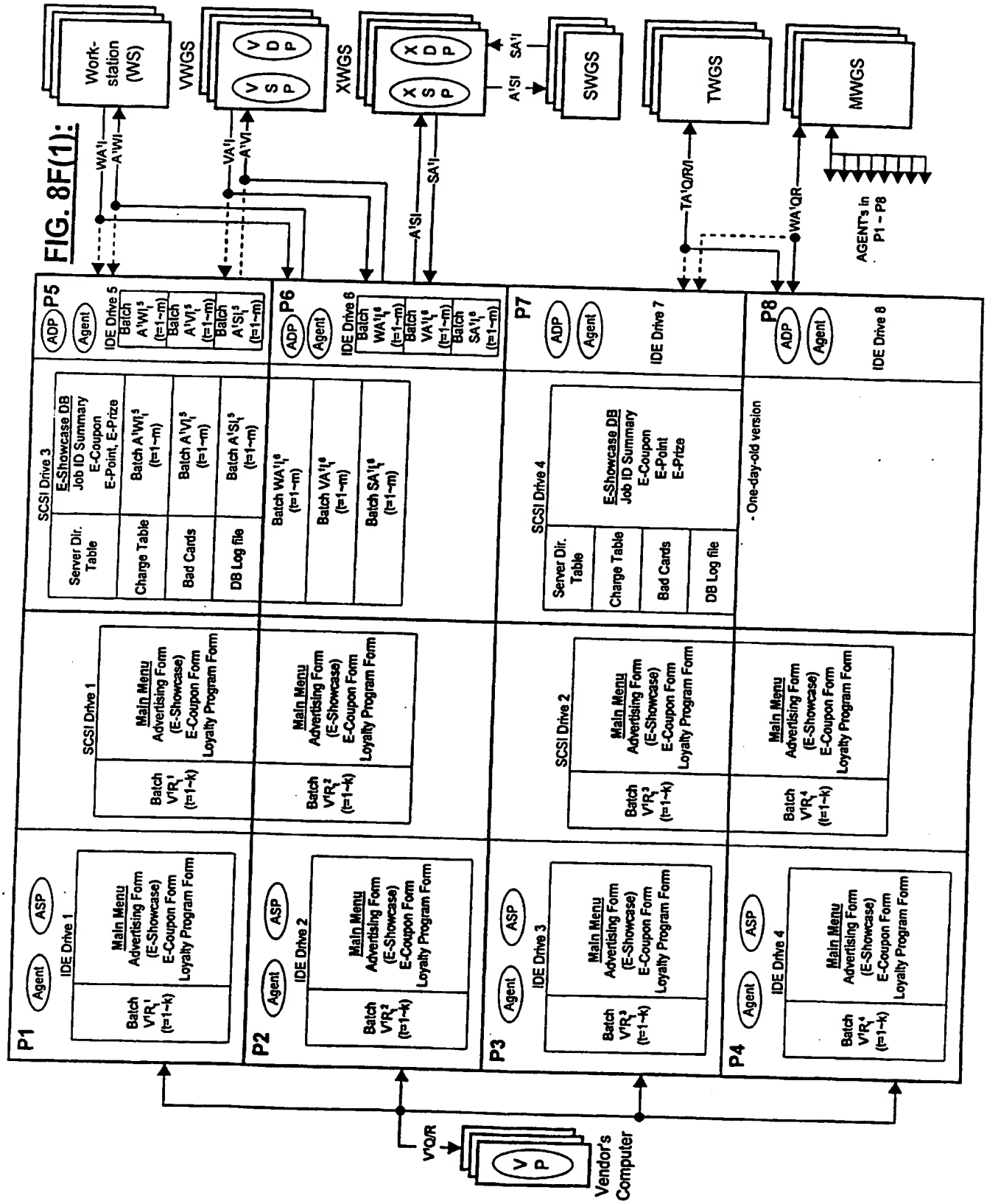


FIG. 8E (2):

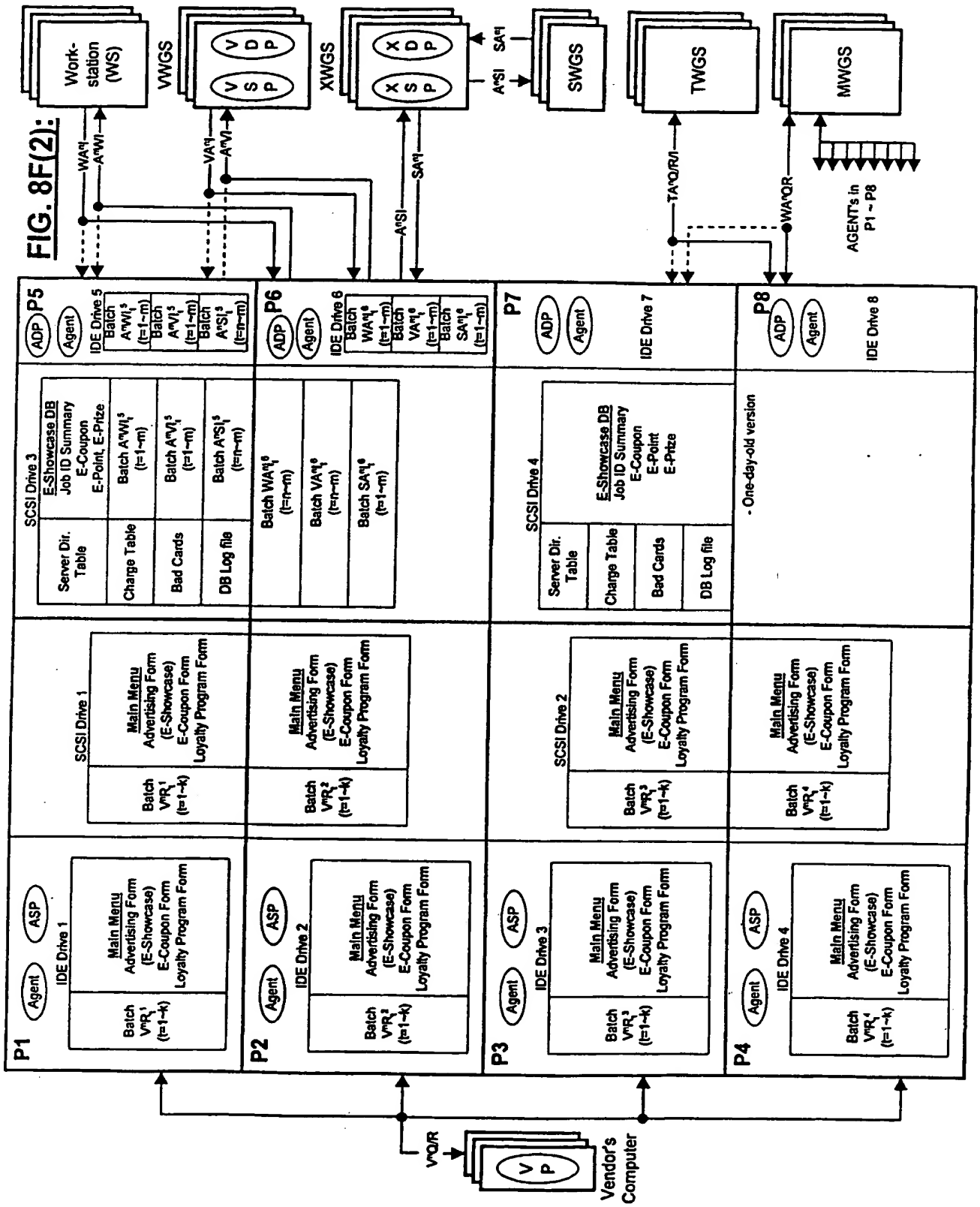
3NSDOCID: <WO 0122325A1_I_>

FIG. 8F(1):



SDOCID: <WO___0122325A1_I >

FIG. 8F(2):



BNSDOCID: <WO 0122325A1 I >

FIG. 8G (1):

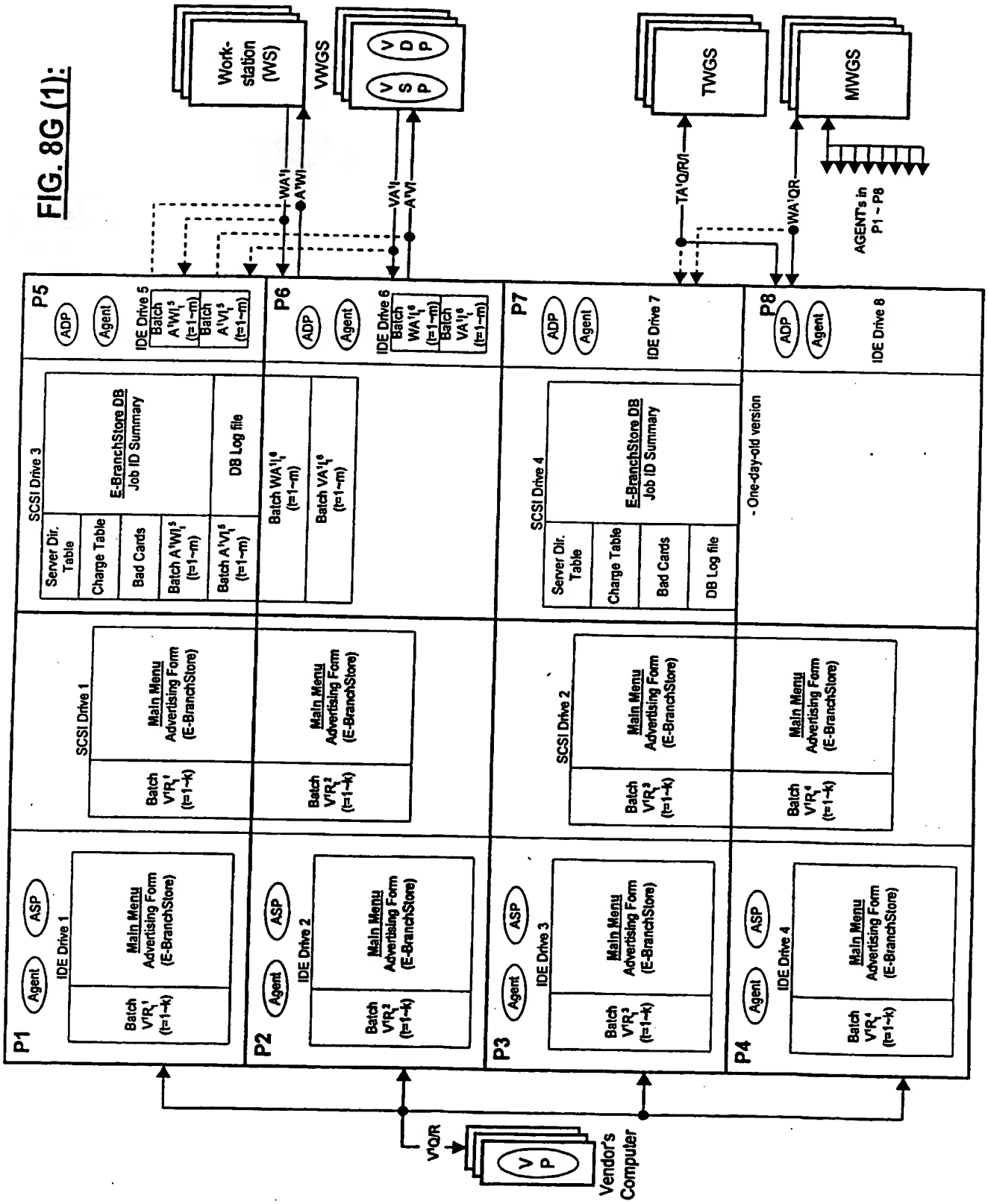

Work-station (WS)
VWGS
TWGS
MWGS
AGENT's in P1 ~ P8
Vendor's Computer
P1
P2
P3
P4
P5
P6
P7
P8
ADP
Agent
ASP
IDE Drive 1
IDE Drive 2
IDE Drive 3
IDE Drive 4
IDE Drive 5
IDE Drive 6
IDE Drive 7
IDE Drive 8
SCSI Drive 1
SCSI Drive 2
SCSI Drive 3
SCSI Drive 4
Main Menu Advertising Form (E-BranchStore)
E-BranchStore DB Job ID Summary
Server Dir. Table
Charge Table
Bad Cards
DB Log file
- One-day-old version

FIG. 8G (2):

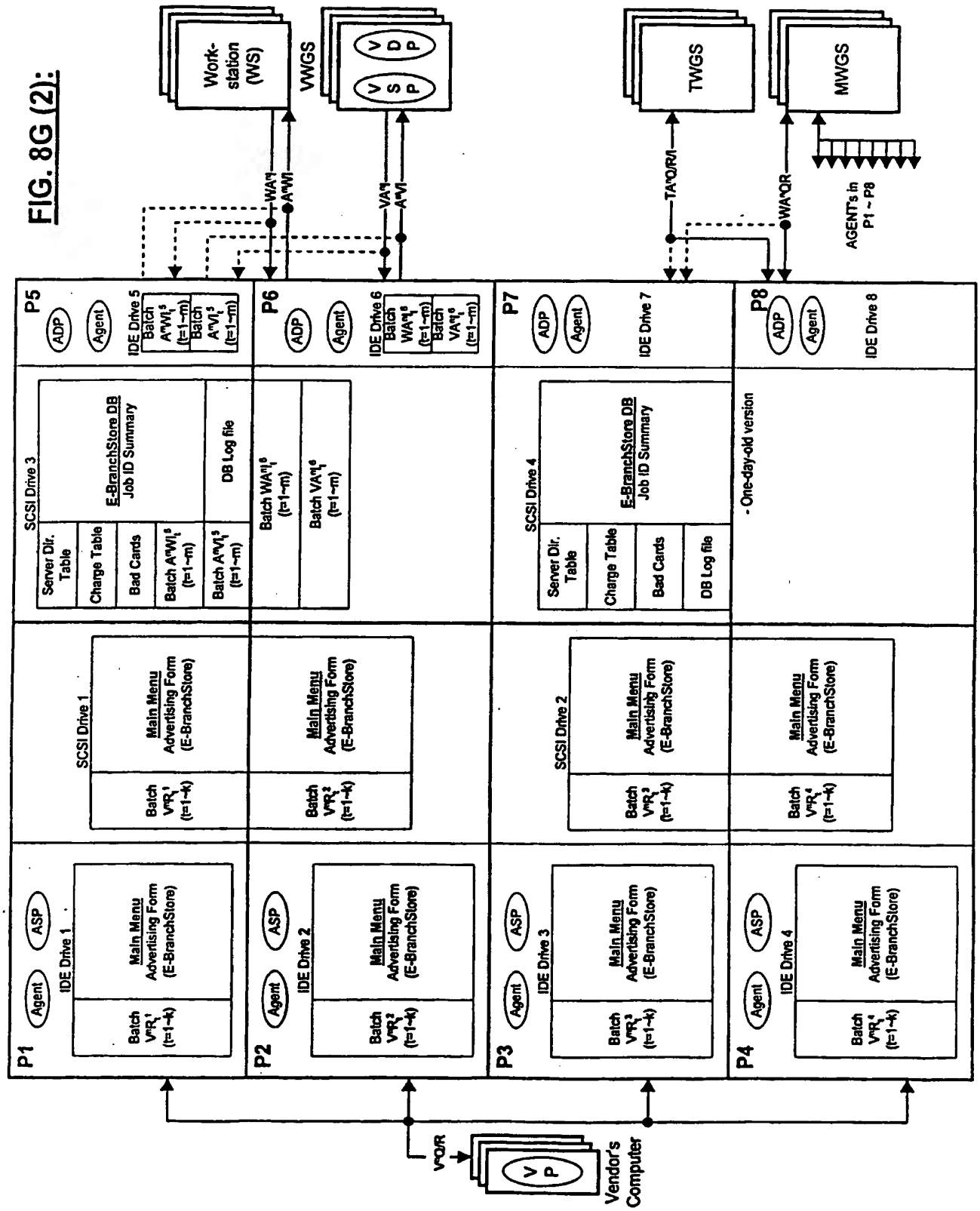
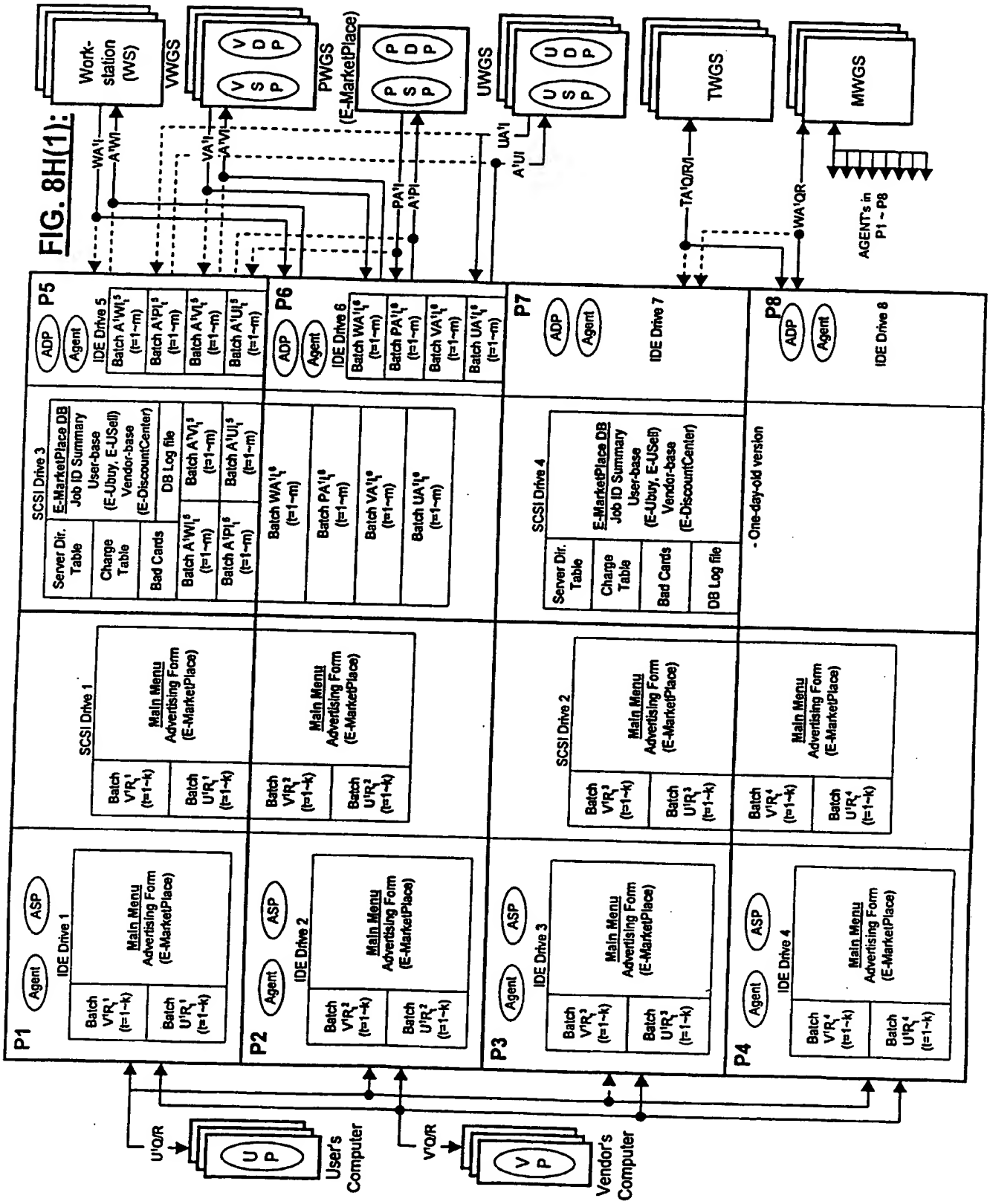
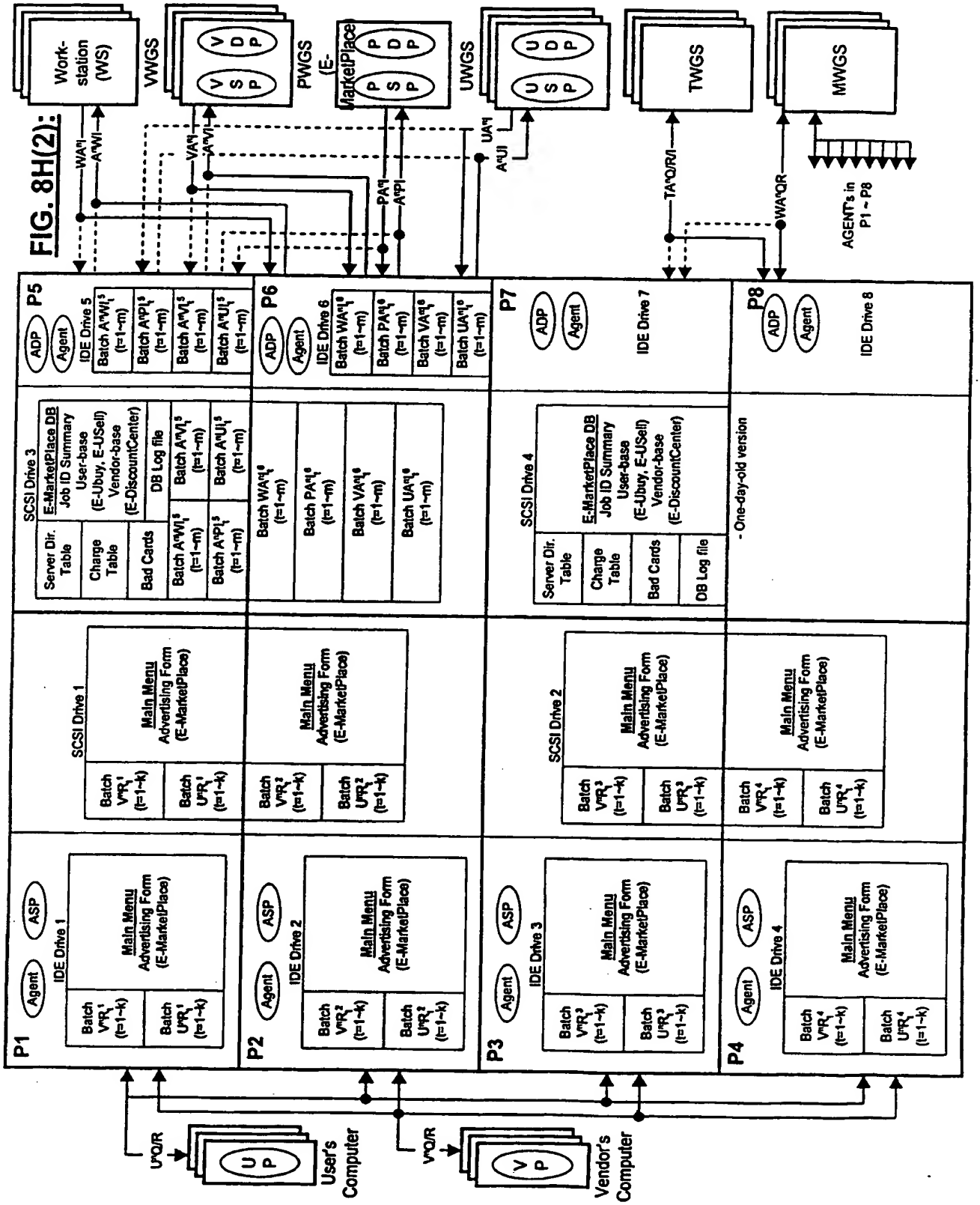

Work-station (WS)
VWGS
TWGS
MWGS
AGENTs in P1 ~ P8
P1
P2
P3
P4
P5
P6
P7
P8
ADP
Agent
ASP
IDE Drive 1
IDE Drive 2
IDE Drive 3
IDE Drive 4
IDE Drive 5
IDE Drive 6
IDE Drive 7
IDE Drive 8
SCSI Drive 1
SCSI Drive 2
SCSI Drive 3
SCSI Drive 4
Main Menu Advertising Form (E-BranchStore)
E-BranchStore DB Job ID Summary
Server Dir. Table
Charge Table
Bad Cards
DB Log file
- One-day-old version
Vendor's Computer

FIG. 8H(1):



NSDOCID: <WO 0122325A1 I >

FIG. 8H(2):



BNSDOCID: <WO 01223325A1 >

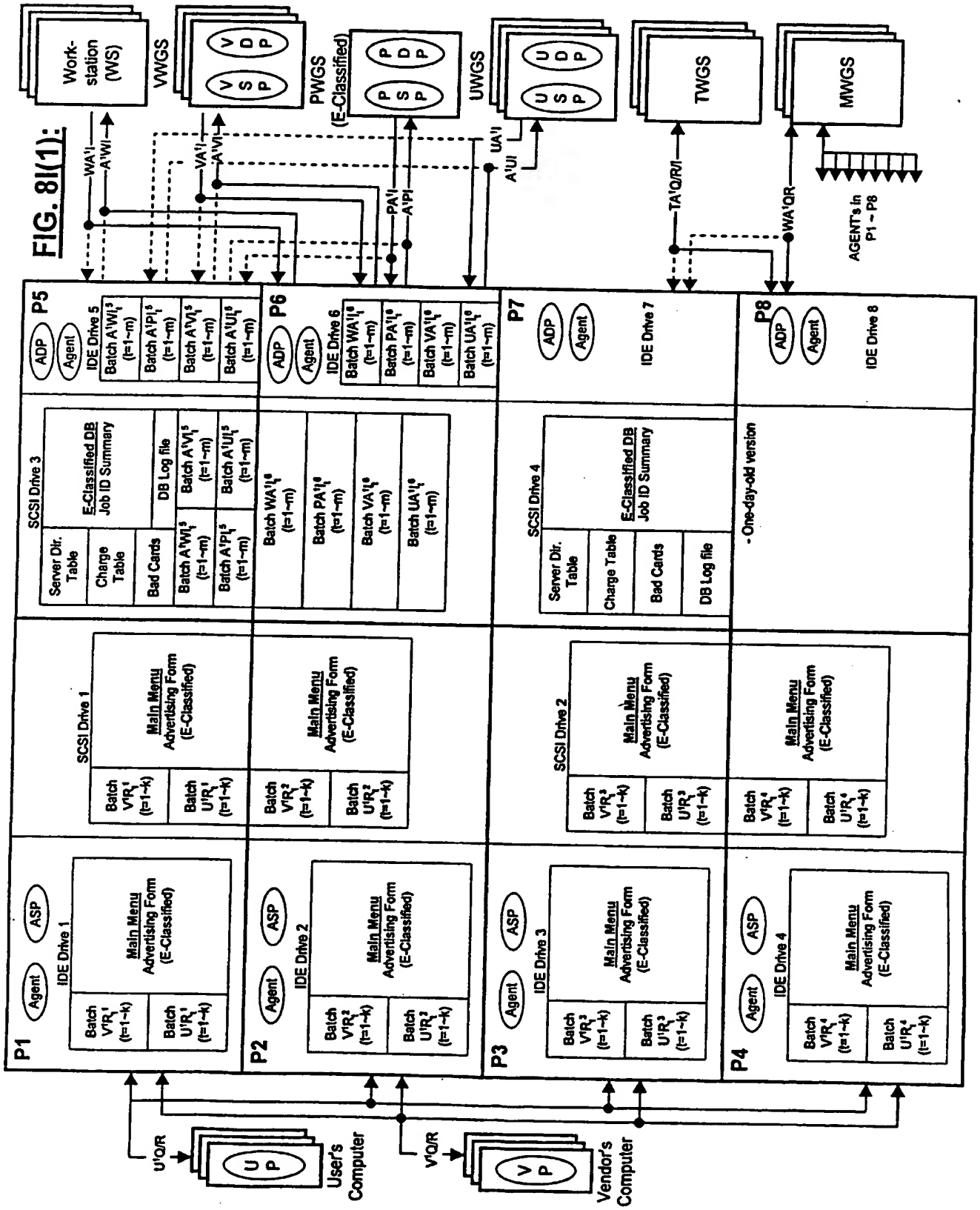
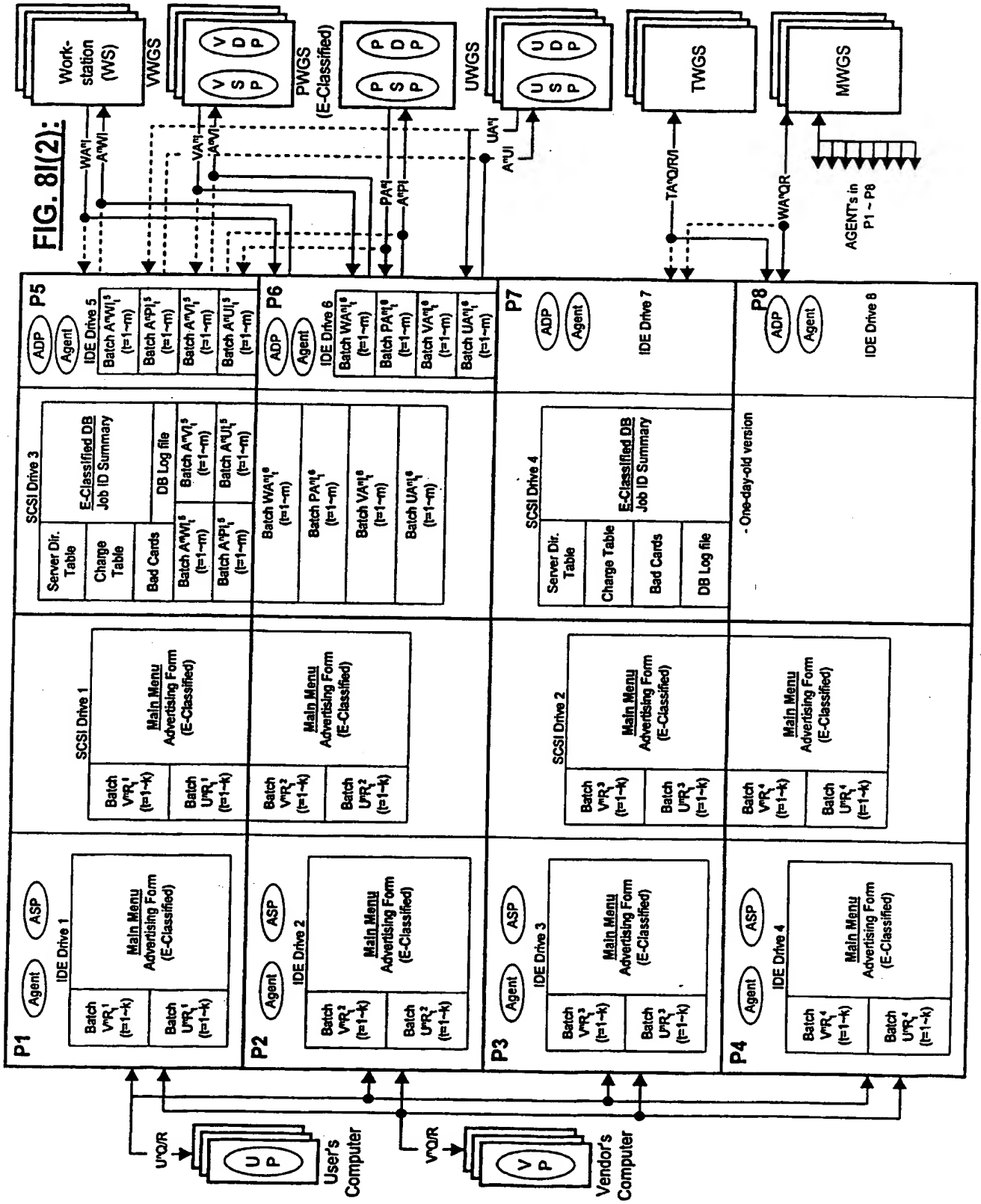


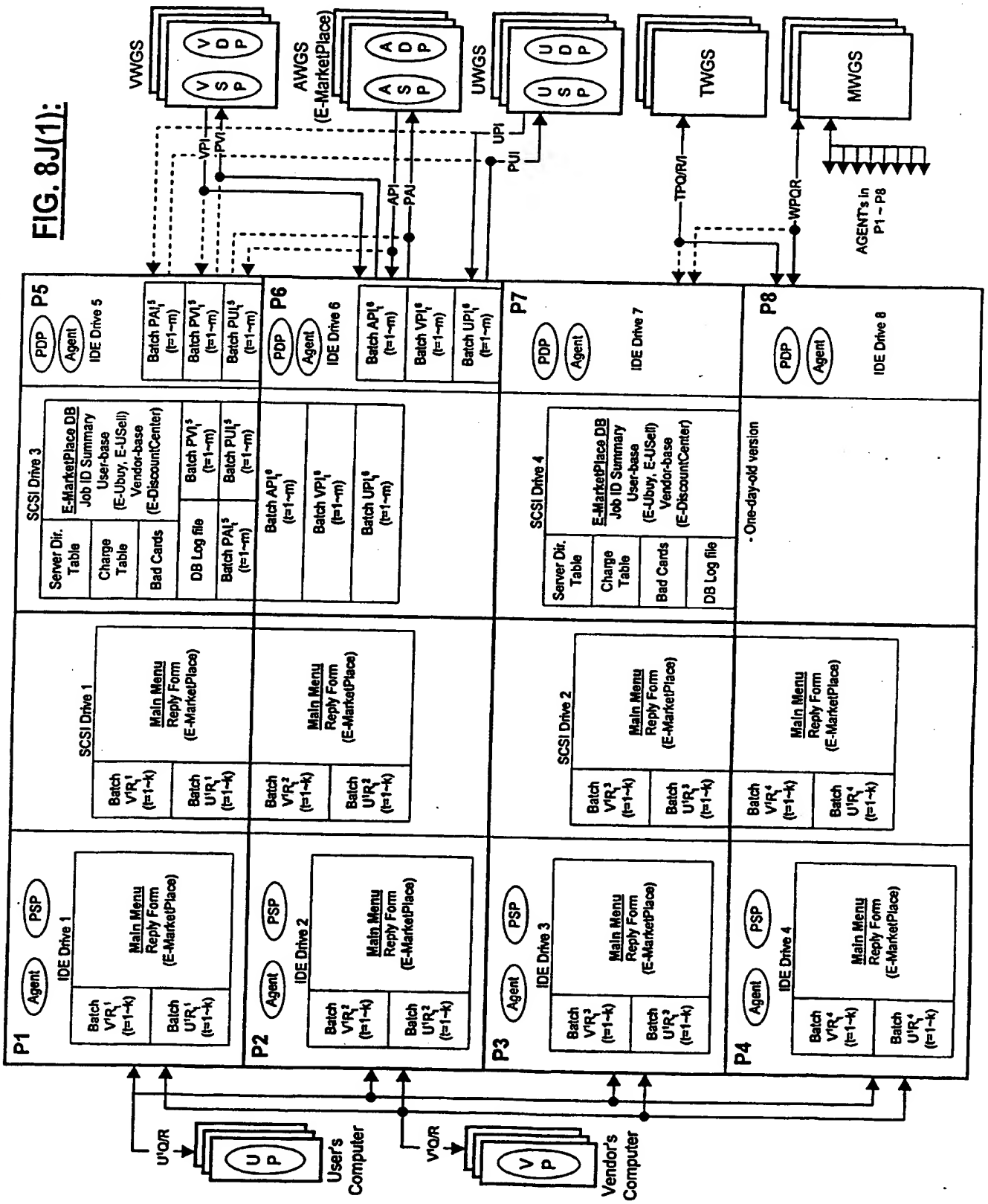
FIG. 8I(1):
Work-station (WS)
VWGS
PWGS (E-Classified)
UWGS
TWGS
MWGS
AGENT's in P1 ~ P8
P1
P2
P3
P4
P5
P6
P7
P8
ADP
Agent
ASP
IDE Drive 1
IDE Drive 2
IDE Drive 3
IDE Drive 4
IDE Drive 5
IDE Drive 6
IDE Drive 7
IDE Drive 8
Main Menu Advertising Form (E-Classified)
SCSI Drive 1
SCSI Drive 2
SCSI Drive 3
SCSI Drive 4
E-Classified DB Job ID Summary
Server Dir. Table
Change Table
Bad Cards
DB Log file
- One-day-old version
User's Computer
Vendor's Computer

FIG. 8I(2):



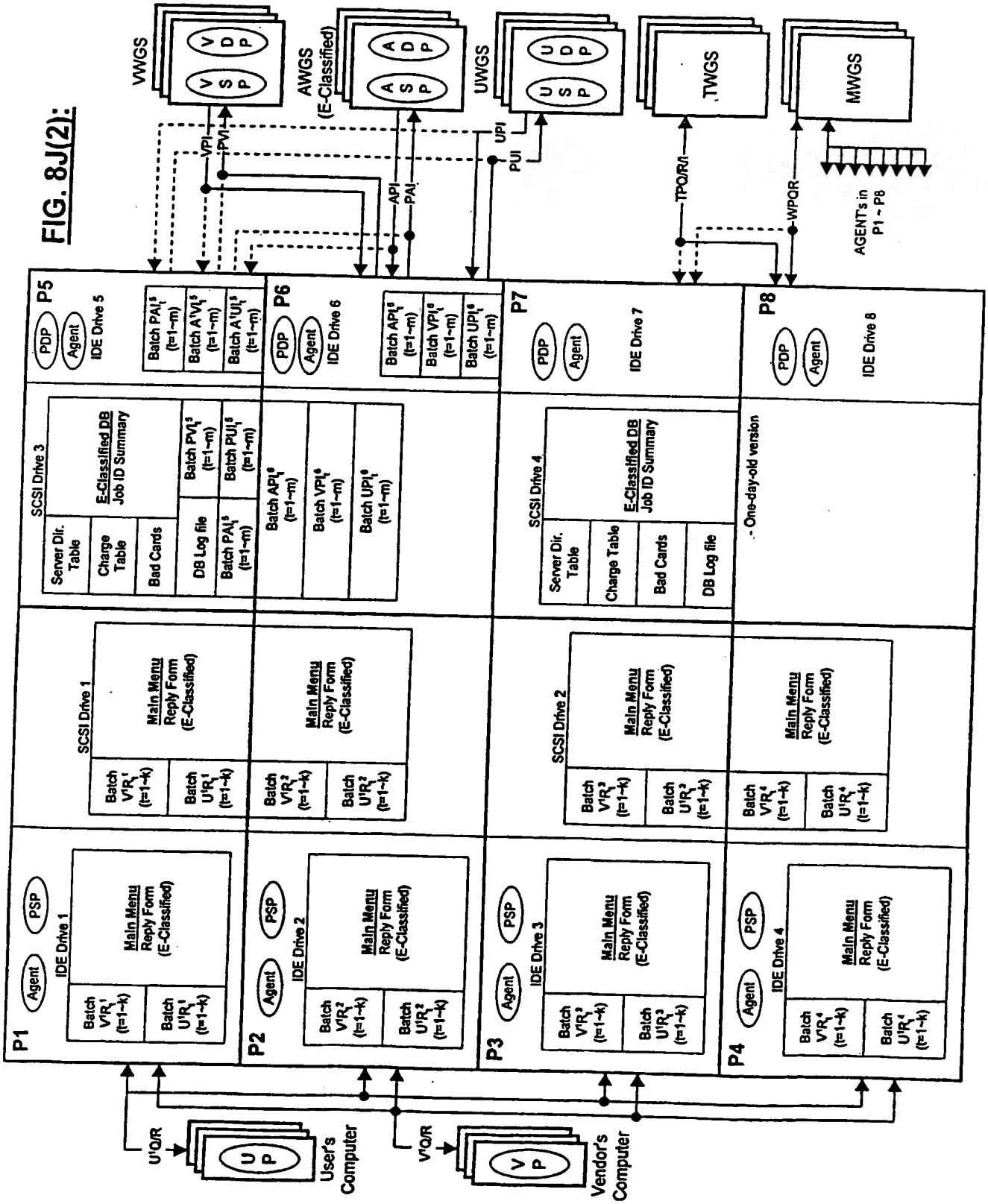
DNICDOCID: <WO___01222325A1_I_>

FIG. 8J(1):



BNSDOCID: <WO 01223254A1>

FIG. 8J(2):



BNSDOCID: <WO 0122325A1 I >

INTERNATIONAL SEARCH REPORT

In nal application No.
PCT/US00/25986

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :G06F 17/60
US CL :705/26, 14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/26, 14

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,918,213 A (BERNARD et al.) 29 June 1999, see whole document.	1-69
Y	US 5,930,767 A (REBER et al.) 27 July 1999, see whole document.	1-69
A	US 5,530,892 A (HWANG) 25 June 1996.	1-69
A	US 5,577,205 A (HWANG et al.) 19 November 1996.	1-69
A	US 5,802,391 A (HWANG) 01 September 1998.	1-69
Y	US 5,806,045 A (BIORGE et al.), 08 September 1998, see especially col. 1, lines 22-37, and col.6, line 32, through col. 8, line 44.	6, 33, 49, 59, 64, 69

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search	Date of mailing of the international search report
29 NOVEMBER 2000	29 DEC 2000
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer VINCENT MILLIN Telephone No. (703) 308-1065

Form PCT/ISA/210 (second sheet) (July 1998)*

BNSDOCID: <WO_ 0122325A1_I_>

INTERNATIONAL SEARCH REPORT

	ional application No. PCT/US00/25980

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,850,442 A (MUFTIC) 15 December 1998, see column 4, lines 32-42.	7, 11, 13, 18, 23, 24, 34, 38, 40, 44, 50, 51.
Y	US 5,873,086 A (FUJII et al.), 16 February 1999, see column 1, lines 23-29 and 62-67.	1-59
Y	US 5,907,837 A (FERREL et al.) 25 May 1999, see especially column 13, lines 25-56.	1-59
Y	US 5,913,024 A (GREEN et al.) 15 June 1999, see column 24, line 62, through column 25, line 5, and column 26, lines 3-9.	61, 66
A	US 5,933,596 A (MAYHEW) 03 August 1999.	1-69
Y	ANON., IBM Technical Disclosure Bulletins, Vol. 38, No. 9, pages 337-339, September 1995, see especially bottom of page 337, top of page 338.	1, 3-10, 13-28, 30-37, 40-53.
Y	ANDREWS, J., et al., CA Magazine, Vol. 130, No. 6, August 1997, pages 12-15, "Net Sales," see especially Abstract and Step 3, Attracting Customers.	2-6, 11-27, 29-33, 38-59.
Y,P	ANON., Newsbytes News Network, 15 October 1999, "Telecom Roundup -- Geoworks to Help Smart Cards," Abstract only.	7, 10-14, 17, 18, 23-25, 34, 37- 41, 43, 44, 50, 51, 53, 57.
Y	DZIATKIEWICZ, M., Wireless Week, page 28, 3 November 1998, "Kopin, Gemplus Announce Alliance."	10, 12, 17, 25, 37, 39, 40, 43, 53, 57.
Y	MOONEY, E.V., RCR Radio Communications Report, Vol. 16, No. 50, pp. 1+, 22 December 1997, "Internet Apps Pose Inherent Challenges."	7, 10-14, 17, 18, 23, 25, 34, 37-41, 43, 44, 50, 51, 57.
Y	REDMAN, R., Bank Systems & Technology, Vol. 35, No. 1, pp. 10-11, January 1998, "MECA, Sun Team to Evolve PFM's into Personalized Web Services," see antepenultimate paragraph, "Sun Connects . . . Web enabled TV set-top boxes."	8, 15, 26, 35, 42, 52, 56.
Y	ANON., AS/400 Systems Management, Vol. 26, No. 3, pp. 36-38, March 1998, "IBM: Internet Picture Becoming More Complex."	9,16, 27, 36, 45, 55.

BNSDOCID: <WO 0122325A1 I >

INTERNATIONAL SEARCH REPORT

In onal application No. PCT/US00/25986

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	ANON., Venture Capital Journal, Vol. 38, No. 9, p. 29, September 1998, "New World Solutions Raises $13.8 Million."	10, 12, 17, 25, 37, 39, 40, 43, 53, 57.

INSPEC ID: -WO 01222954A1_I_>

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/25986

B. FIELDS SEARCHED
Electronic data bases consulted (Name of data base and where practicable terms used):

WEST keyword search of US patents, European and Japanese patent abstracts, Derwent patent abstracts, and IBM Technical Disclosure Bulletins. Search terms: e-commerce, electronic commerce, user, customer, buyer, purchaser, authenticat$, time based, management, advert$, incentive, buy$3, bought, purchas$3, service, computer, load, balanc$, application, database, server, multiple, plural$, several, on-line, on-site, online, onsite, merchant, smart, chip, IC, card, reader. DIALOG files 2, 9, 15, 16, 20, 35, 47, 65, 77, 99, 148, 160, 233, 256, 275, 278, 347, 348, 349, 473, 474, 570, 583, 621, 623, 624, 634, 635, 636, 810, 813: keyword search for PC, personal computer, TV, television, wireless device, cell, cellular, phone, telephone, web, enabl?, e-commerce, electronic commerce, online, on-line, onsite, on-site

BNSDOCID: <WO 0122325A1 I >